STEEL

The Magazine of Metalworking and Metalproducing

ESTABLISHED 1882

EDITORIAL INDEX, PAGE 35

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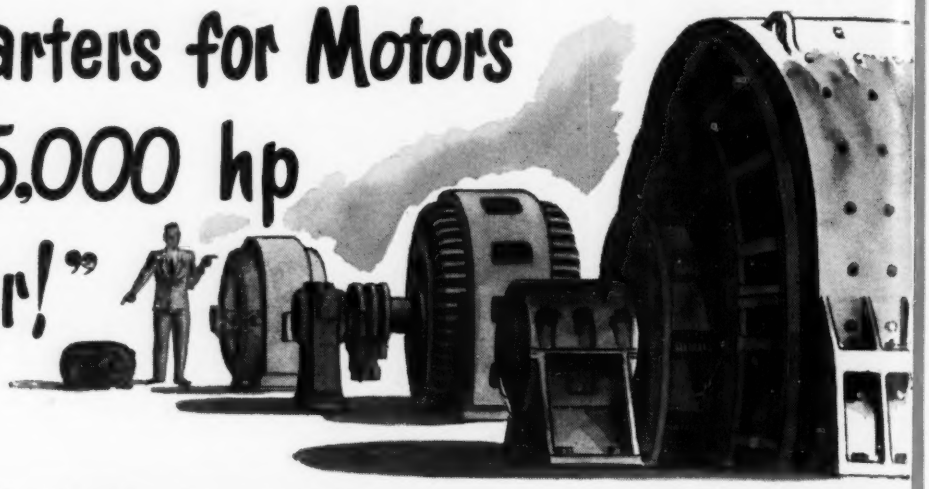

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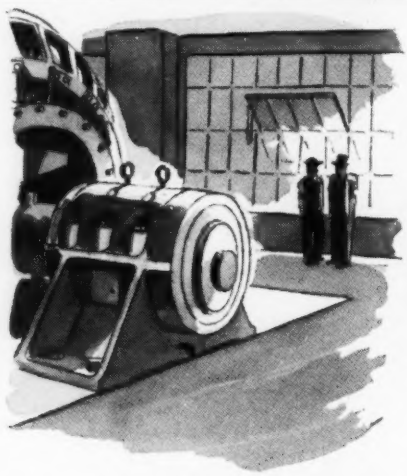

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STEEL

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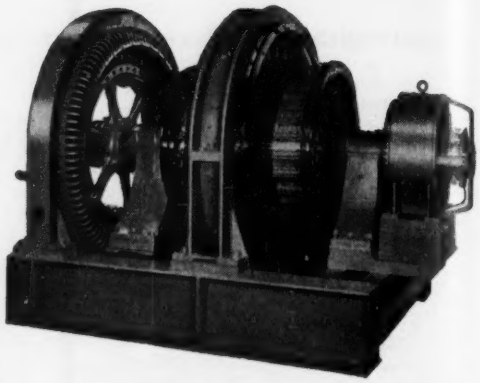

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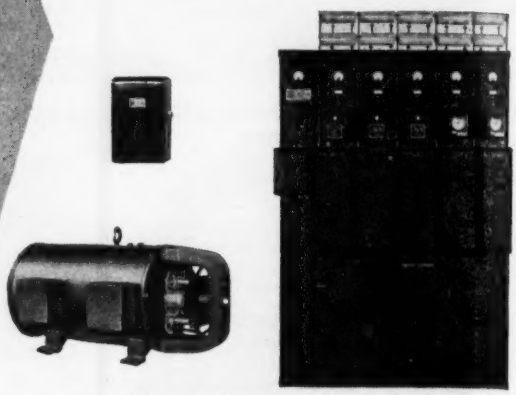

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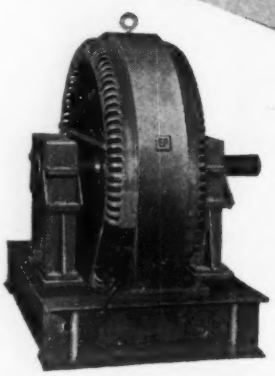

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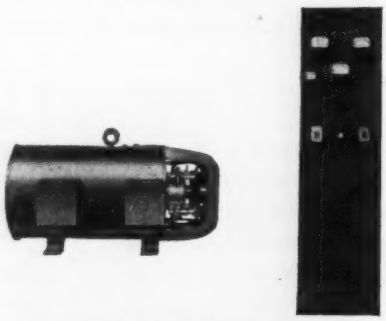

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May 17, 1948

Mandatory Controls Not Needed

If one were to judge from frequent statements by President Truman and from the utterances of a few other spokesmen from Washington, one would be justified in concluding that mandatory controls for scarce materials not only are inevitable but are "just around the corner." The President and some of his advisers take the attitude that whether or not there is an urgent or immediate need for such controls at present, Congress should grant the administration authority to impose the controls if and when needed.

If Congress were to grant such authority now, it is almost certain that the government would lose little time in "discovering" one or more situations critical enough to constitute a pretext for imposing mandatory controls and regulations. In the minds of many in the administration, ERP and the rearmament program alone would provide an adequate excuse.

Fortunately for the nation, the representatives of government and industry who have been working closely with the voluntary allocations agreements under Public Law 395 now agree that the experience of the past four months reveals nothing now in sight that would necessitate the use of mandatory measures. So far, many of the needs that at first seemed to present insurmountable difficulties have proved to be less troublesome than expected. In fact, the tonnage of steel requiring attention even under the voluntary allocations program has proved to be unexpectedly small. This conclusion is based upon a thorough study of requirements in the fields of railroad equipment; farm machinery; housing; petroleum production, transportation and refining; military equipment; and the foreign assistance program.

Encouraging also is the attitude of the newly appointed Secretary of Commerce Charles Sawyer. When asked if in his opinion mandatory controls will be needed in the near future, Mr. Sawyer said, "The less government control over inflation—or anything else—the better. The program to direct scarce materials and goods to essential uses has been as successful as one could expect, and we hope to be successful with it."

Barring disastrous strikes or other disturbances, the nation has reason to believe it can work its way through present commitments without invoking mandatory allocations. If this belief proves to be true, untold waste, delay and confusion will be avoided.

* * *

UNIQUE SALES COURSE: Something brand new in education awaits salesmen in the machine tool industry. It is a unique sales training course to be conducted from July 12 through July 23 at the Sibley College of Engineering at Cornell University.

The program for this unusual course was developed by the National Machine Tool Builders' Association, American Machine Tool Distributors' Association, numerous industrial machine tool users and Cornell University. The objectives of the course are to prepare salesmen to act as technical consultants to users and to shift the major emphasis in sales from the initial cost of machines to the cost per unit of production. It is expected that as a result of the program sales effort will be directed more toward "front office" management and less toward production men, most of whom already are firm believers in the value of new tools in the current struggle against rising costs.

A study of the outline of the course shows that the "faculty" consists not only of Cornell's top engineering talent but also of scores of executives of companies building, distributing and using machine tools who are well qualified

(OVER)

by experience to speak authoritatively on their respective subjects.

This is the first time an ambitious program has been developed to improve the selling of an entire industry. It is a highly appropriate sequel to the outstanding Machine Tool Show of 1947. Judging from the care with which this novel undertaking has been conceived and developed, its sponsors are likely to score a signal success. —p. 54

* * *

IMMUNITY TO CRISES?: It is amazing how the recurrent crises which plague our domestic economy come and go without inflicting quite as much damage as one might expect.

The coal strike was admittedly serious. It caused a severe set-back. The effect of the Chrysler strike cannot be determined at this early date. Stoppage of railroad transportation was averted at the eleventh hour and the terms of settlement still are in doubt. Another coal crisis is indicated.

In spite of these threats and disturbances, industrial production is running at a comfortable pace. Most of the business barometers look pretty good in comparison with the figures of a year ago. We have lost a substantial volume of production in intermittent strife, but the losses thus far do not necessarily doom 1948 as a year of good business. Can it be possible that frequent exposure is developing a national immunity to crises? —pp. 45, 62

* * *

BARRED BY PREJUDICE: An undercover battle is raging in Washington against the disposition of the Justice Department to bar the appointment of trade association executives to industry advisory committees with which various government departments and agencies have dealings.

The fight is rather senseless in many respects because numerous government divisions wink at the Justice Department's official attitude. Most capable government officials know from experience that trade association executives frequently possess information about their respective industries that is not readily available from any other source. Enlightened federal chiefs welcome the help and advice of trade association personnel because it saves time and costly duplication of effort.

The stand-offish attitude of the Justice Department stems from New Deal prejudices and undue suspicions as to the motives of some trade associations. What harm can be done if, after appointing a representative panel of industry executives to an advisory board, one or more trade association executives are added to supply the overall information and viewpoint that is so pertinent to prompt results? —p. 50

* * *

NOBLE EXPERIMENT: A study made during the war showed that the steel industry buys between 35,000 and 40,000 different items. Last year eight of these items cost Youngstown Sheet & Tube Co. $68 million. In order of dollar value, these eight items were scrap, coal, fuel oil, ferroalloys, coke, tin, brick and zinc.

Probably these eight materials and supplies rank high on the list of purchases of every steel producer. For that reason, it is interesting to note that the price of each of the eight has increased far more since 1939 than has the price of the industry's product—finished steel.

Whereas the price of steel has advanced about 40 per cent since 1939, the price of coal is up 251 per cent, of petroleum products 178 per cent, scrap 122 per cent, tin 88 per cent, ferroalloys 71 per cent and brick 54 per cent. Figures like these make the steel industry's recent voluntary price cuts look like a truly noble experiment. —p. 60

* * *

SCRAP, $4.50 PER TON: Persistent inability to cut the red tape that seemingly bars the return of available iron and steel scrap from abroad re-emphasizes the necessity of developing the utmost in ingenuity to uncover neglected sources of domestic scrap.

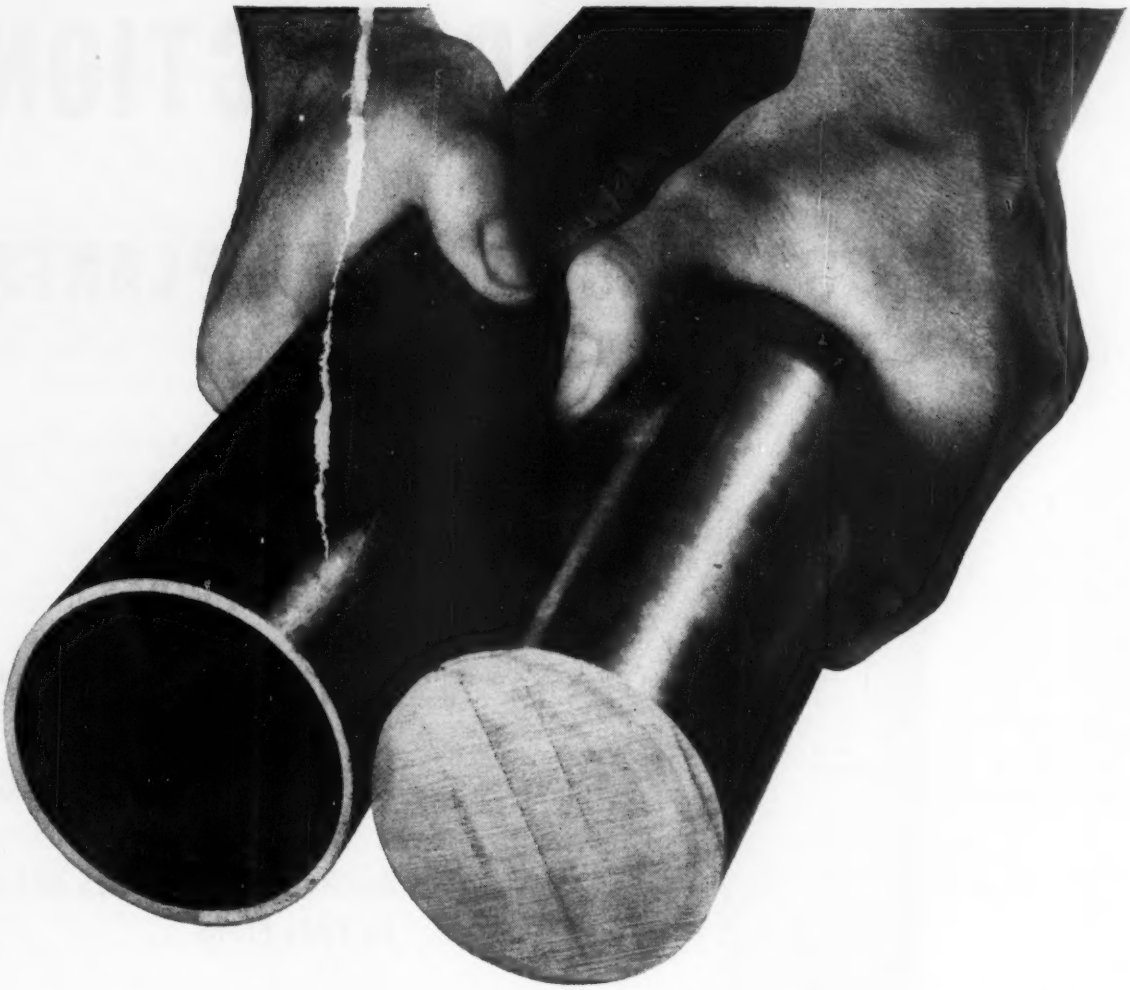
One such source is the slag dump. Some companies have reclaimed tonnages from these dumps but others have felt that the cost was prohibitive. One steel producer has found that by installing a relatively simple gas cutting set-up, he can use an oxygen lance on large skulls and blowpipe on smaller sizes which, coupled with the use of explosives, yields scrap in charging box size at a recovery cost of $4.50 per ton.

Before finally abandoning the slag dump as hopeless, it may be advisable to obtain the latest expert opinion on methods and costs.

—pp. 53, 94

E. L. Shaner

EDITOR-IN-CHIEF



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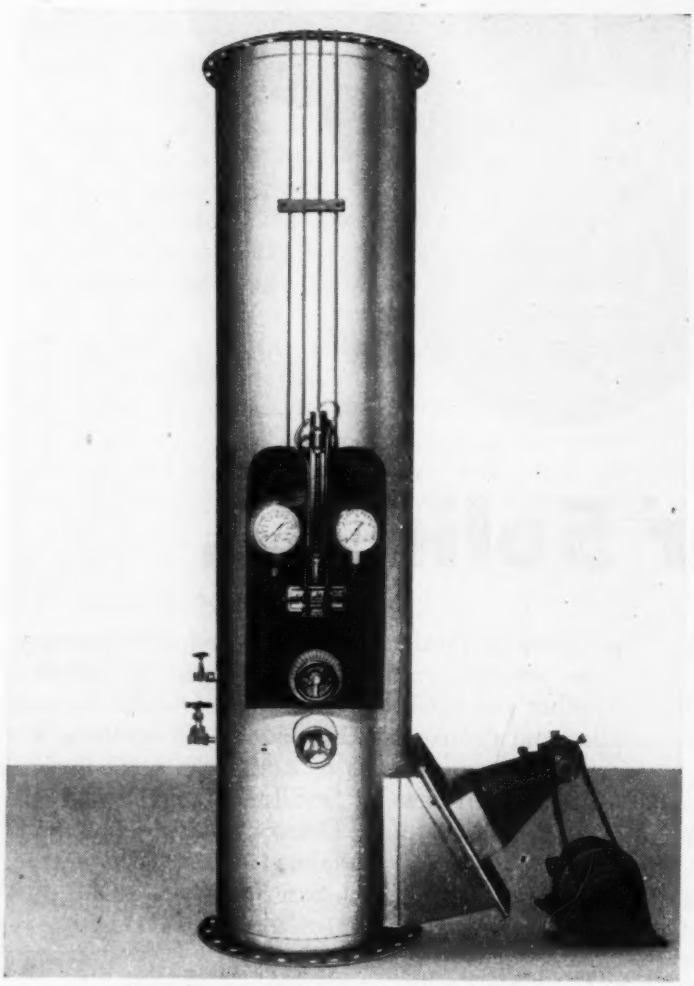

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News Summary

LABOR TROUBLES— Two years of comparative labor peace in the automotive industry was broken last week when 75,000 workers struck Chrysler Corp. plants, a move expected to affect another 75,000 workers in suppliers' shops (p. 45). Observers fear the walkout may be protracted and its outcome may have profound influence on the labor relations of other metalworking plants over the remainder of the year. The strike is metalworking labor's first big test of third round wage demands.

ALLOCATIONS— Pressure for enactment of mandatory controls is slackening in some quarters and many administration officials now believe that the voluntary allocations program will be adequate for needs in sight or anticipated (p. 43). Increased steel requirements for foreign aid, rearmament and other essential programs will be less than many believe. Total requirements for these programs are estimated at 17 to 17.5 million tons annually, as compared with about 14 million tons now being used.

LASH AT GRAY MARKET— The steel industry dealt its first legal blow at the gray market operators in steel, who have caused the producing industry much embarrassment since the war. Jones & Laughlin has filed two complaints (p. 47) against brokers who claimed they controlled J & L ingots which were offered at premium prices.

STEEL MILL PURCHASING— The tremendous job that faces the purchasing department of a large steel mill is related (p. 60) by H. H. Waldschmidt of Youngstown Sheet & Tube Co. Between 35,000 and 40,000 different items are purchased by steel mills, and total purchases run into almost fantastic figures. The job currently is complicated by (1) scarcities and (2) spiraling prices.

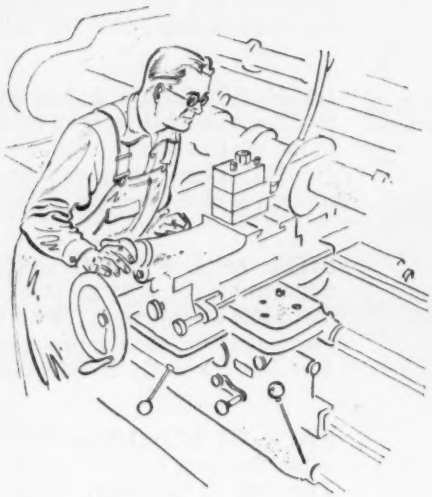
BACK TO SCHOOL— Machine tool salesmen will go back to school July 12 when the first industry-wide sales training program opens at Cornell University. The unique program, says the National Machine Tool Builders' Association, sponsor of the school, is designed to improve the selling of the entire industry (p. 54).

BASING POINT PRICING—United States Circuit Court of Appeals at Chicago last week upheld a Federal Trade Commission order banning basing point pricing for the rigid conduit pipe industry (p. 49). The decision follows the U. S. Supreme Court ruling against basing point pricing in the cement industry; a year ago the circuit court upheld the cement industry's pricing system. In its case against the steel industry, the FTC expects to complete presentation of evidence by June 15 (p. 48).

WHAT IS NORMAL?—Hopes for return of "normal" times are a sheer illusion, steel warehouse men were told last week in Chicago (p. 46). Conditions that are subject to change and which constantly bring new short range and long range fluctuations may now be considered normal. Distributors were warned that further tightening in steel supply is in prospect but that the situation is not likely to become desperate.

SIGNS OF THE TIMES—Attempts to move iron and steel scrap from Germany to the United States continue to hit snags (p. 53). United States dealers are being organized to help expedite the return of this material. . . Modernization of the Great Lakes bulk freighter fleet is being sought by trading in obsolete vessels to the government to be used for scrap, using the proceeds to help finance new construction (p. 48). . . Exports of steel products (p. 49) continue to decline. . . Kearney & Trecker today celebrates its 50th anniversary as a builder of machine tools (p. 54). . . Although more than 800,000 tons of ingot production was lost in April as result of the coal mine strike, output for the first four months (p. 44) exceeds that for the comparable 1947 period. . . Trade association executives are protesting (p. 50) their exclusion from industry advisory committees.

"I Like the UNIFORMITY of Inland Steel"



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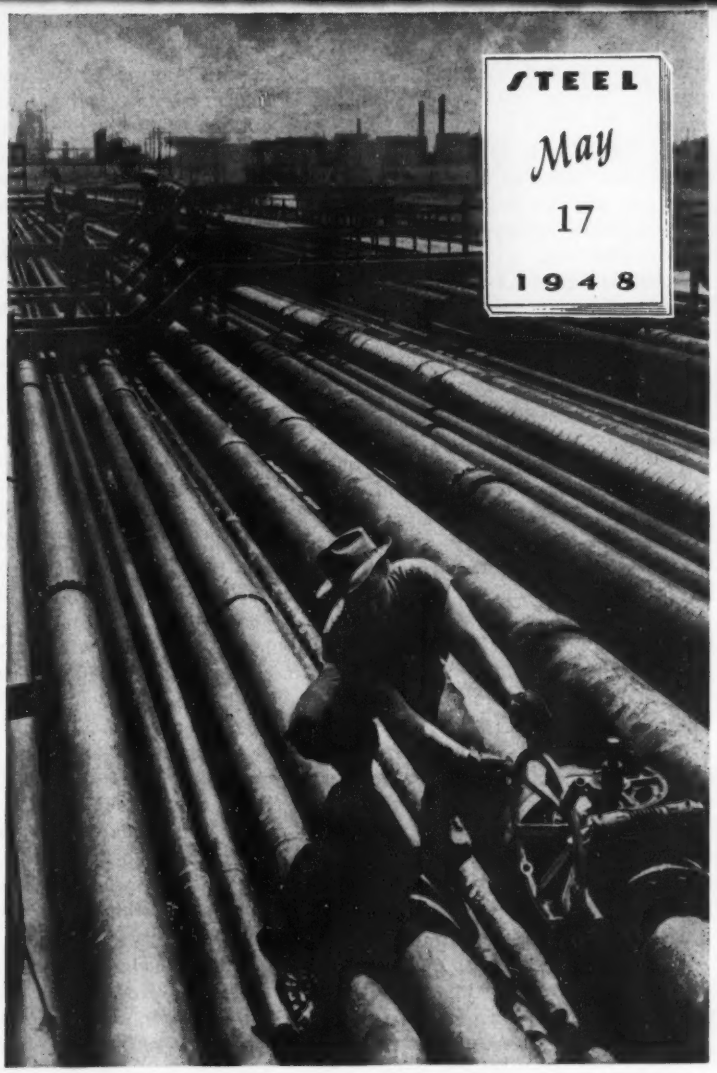
Pressure Eases For Mandatory Allocations

Voluntary program seen adequate for channeling steel into essential programs. Tonnage to be less than originally anticipated



The petroleum industry, with its huge requirements for steel, is one of the major problems of the voluntary allocations program. Estimates submitted by the industry's advisory committee are being screened by Office of Industry Co-operation

WASHINGTON

INFORMED government officials generally are agreed that all pressing steel needs now in sight can be taken care of adequately by means of voluntary allocations agreements under Public Law 395.

They continue to follow the White House line that Congress should vote the President full standby economic controls—over prices, wages and distribution of goods and materials—to be utilized in case of need. But they see no immediate need for mandatory controls that would regulate distribution, rationing and allocations.

The current attitude was well reflected when the new secretary of commerce, Charles Sawyer, held his initial press conference. He not only had conferred with his group of advisers in the Commerce Department, but he had attended a number of informative meetings, including that with the steel industry representatives on May 6, and had become fairly conversant with the underlying condition in the materials picture.

"The less government control over inflation—or anything else—the better," said Mr. Sawyer when asked if in his opinion mandatory controls will be needed in the near future. "The program to direct scarce materials and goods to essential uses has been as successful as one could expect,—and we hope to be successful with it."

It was in the nature of an afterthought that he added: "If we can't accomplish it without mandatory controls, we will have to have them."

Allocations Needs Modest—So far the needs that are regarded as "pressing" and as requiring attention under the voluntary allocations program have proved to be unexpectedly small. This is the conclusion following intensive study over the past four months by the Office of Industry Co-operation and by Commerce officials as to problems of our present economic deficiencies. Specifically, that is the conclusion after thorough study of requirements in the fields of railroad equipment, farm machinery, housing, petroleum production, transportation and refining, military equipment, and the foreign assistance program.

Allowing for everything now in sight, for all needs that possibly can be anticipated, the total amount of steel to be placed under allocations agreements, including tonnages already allocated, will be around 6.5 million tons. However, far less than that amount of steel is required for new or additional use. Of the 6.5 million tons to be placed under allocations agreements, not more than 2 million to 2.5 million tons represent an increase over 1947 consumption.

Suppliers Available—In view of the fine co-operation from the steel industry, everybody involved agrees there will be no difficulty in finding suppliers for this increment of 2 million to 2.5 million tons.

The largest program created up to date is that which calls for 3 million tons of steel during 1948 for construction and repair of freight cars; this represents a net increase of 1 million tons over the 2 million tons used for freight cars in 1947.

In the field of housing only one allocation agreement has been entered into so far. This covers 300,000 tons of steel for consumption in 1948 in the manufacture of warm air furnaces. But this tonnage represents an increase of only 60,000 tons

over the 240,000 tons used in the manufacture of warm air furnaces in 1947.

Other proposals for allocations for the housing industry have been turned down, or at least deferred. By stepping up nail production and getting more nails into geographical areas in which they had been scarce no allocations were found necessary. For example, the request for steel allocations for prefabricated houses was rejected on the ground that with a prefabricated house requiring 4 to 9½ tons of steel and with a conventional type of house requiring only 1½ tons of steel, the creation of a program of prefabricated steel house production covered by allocations would represent an unwarranted use of steel.

A new requirement which has been taken care of by an allocations program calls for 160,000 tons of steel in 1948 for the Atomic Energy Commission.

Farm Program Shelved—Originally a steel allocation program to get increased production of farm machinery was contemplated, but after consultation with the farm equipment industry, the proposal was rejected as not warranted.

Three remaining programs that will use substantial tonnages of steel now are under contemplation. Of these the petroleum expansion program is rather difficult because it involves questions of international policy and of military security. Allowing for reasonable possibilities, informed opinion is that whereas the National Petroleum Council recently estimated that all petroleum expansion requirements call for a total of 10 million tons of steel a year, only some 3 million tons of this total should be handled under allocations agreements. Also, it now is figured, this 3 million ton figure represents an increase of only 1 million tons over 1947 consumption. This figure makes allowance for contemplated expansion by American companies to get increased production of petroleum in Saudi Arabia and Venezuela. No agreements covering oil country goods, pipelines, line pipe, oil containers and tankers are contemplated, as production in these brackets is all it should be, or can be increased to maximum without allocations, and the current production is going entirely to meet petroleum requirements.

A number of angles to the petroleum program can be taken care of later on without raising new allocations problems. For instance, it now is proposed to fit petroleum tank car needs into the freight car program without calling for additional car steel.

Little Needed for Air Program—The other two programs, rearmament and foreign economic assistance, are not expected to require any allocations assistance. On the basis of such increased production of military materiel as will be authorized by Congress before it adjourns or recesses on June 19 or thereabouts, the increase in the need for steel will not be sufficient to require allocations. The 70-group Air Force porgram will constitute an additional burden which can be assumed by the steel industry without discomfort. As to the tonnage of steel to be exported, the foreign assistance program remains to be finally revised, but Paul Hoffman joins with Commerce officials in the assurance that our total steel exports when this program gets in motion will be less than the 1947 exports of about 6.5 million tons.

Some pig iron probably may be allocated under agreements, but the total is not expected to be important. So far formal allocations have been avoided by the willingness of producers to accept moderate sized tonnages informally. The pig iron task committee will meet the OIC on May 19 and 20 to consider pending requests for cast iron pipe, soil pipe and plumbing goods; total requests come to something under 200,000 tons per year more than current consumption by these industries. Some allocations may result.

Many Proposals Impracticable—On the basis of experience to date, the OIC finds that of the industries investigated for assistance under Public Law 395 most can get along without such assistance. Likewise, most proposals to make use of certain industries to carry out the purposes of the act prove impracticable. For example, the OIC has about come to the conclusion that the steel warehouse industry already is serving its function of taking care of the steel needs of a maximum number of small consumers; perhaps the warehouses could do an even better job if they were to get more steel, but no justification has been shown for using allocations to divert more steel to these interests under present conditions. Some thought continues to be given to the possible use of the warehouses in helping to erect more housing, but difficulties are in the way. It would be no simple task to set up an industry advisory committee which could act as spokesman for and be responsible for some 2000 steel distributors located all over the country.

A proposal to appoint an aluminum industry advisory committee has met with a temporary setback as a result of assurances that the rearmament program should not create any major difficulties in connection with the aluminum supply.

Little Pressure for Controls—In the

(*Please turn to Page* 151)

Ingot Output Surpasses 1947

STEEL production in April was more than 800,000 tons below the output of April, 1947, as the result of the coal miners' strike, but total output for the first four months of the year, at 28,250,877 tons of ingots and steel for castings, exceeded the 27,985,500 tons produced in the corresponding 1947 period, according to American Iron & Steel Institute. Output in the first quarter set a peacetime record. Operations in the latest month were at 80.6 per cent of capacity, compared with 95.3 in March and 93.8 in the corresponding month of 1947.

The walkout interrupted one of the industry's most active periods for shipment of finished products. First quarter shipments totaled approximately 16,438,000 tons, and if the same rate could have been continued 1948 total shipments would have exceeded the wartime record. Sheet and strip shipments also were at a record rate, on an annual basis, in the quarter, totaling 4,848,200 net tons.

Steel Ingot Production Statistics

	Estimated Production—All Companies								*Calculated weekly	Number
	—Open Hearth—		—Bessemer—		—Electric—		—Total—		produc-	of
1948	*Net tons	Per cent of capac.	Net tons	Per cent of capac.	*Net tons	Per cent of capac.	*Net tons	Per cent of capac.	tion all companies Net tons	weeks in mo.
Jan. ...	6,768,497	95.5	343,169	77.5	361,110	79.0	7,472,776	93.6	1,686,857	4.43
*Feb. ..	6,245,338	94.3	340,596	82.3	354,270	82.9	6,940,204	93.0	1,676,378	4.14
*Mar. ..	6,841,578	96.6	363,235	82.0	403,322	88.2	7,608,135	95.3	1,717,412	4.43
*1st qtr.	19,855,413	95.5	1,047,000	80.6	1,118,702	83.4	22,021,115	94.0	1,693,932	13.00
†Apr. ..	5,654,125	82.4	185,089	43.2	390,548	88.2	6,229,762	80.6	1,452,159	4.29

* Revised. † Preliminary figures subject to revision.

For 1948, percentages of capacity operated are calculated on weekly capacities of 1,599,286 net tons open hearth, 99,962 net tons bessemer and 103,228 net tons electric ingots and steel for castings, total 1,802,476 net tons; based on annual capacities as of Jan. 1, 1948, as follows: Open hearth 83,610,690 net tons, bessemer 5,226,000 net tons, electric 5,396,770 net tons, total 94,233,460 net tons.

Fear Long Strike at Chrysler

Outcome of dispute expected to have large influence on labor-management relations in metalworking industry over balance of year. Army operates railroads

FIRST major work stoppage in the metalworking industry resulting from organized labor's campaign for a third round of postwar wage increases started last Wednesday when 75,000 Chrysler Corp. employees left their jobs. At week's end, prospects for early settlement of the dispute appeared dim and officials of both labor and management expressed the belief that the stoppage might last for weeks.

Third round wage increases generally have been denied by the large companies in the steel producing and metalworking fields. Practically all the major basic steel companies refused demands of the United Steelworkers for a "substantial" wage boost last month. General Electric Co. and Westinghouse Electric Corp. took a similar stand. A few small metalworking companies have granted modest adjustments.

All metalworking management is watching the Chrysler strike closely in the belief that what happens at Chrysler may have a profound effect on the industry's labor relations for the remainder of the year.

Murray Reiterates Pledge — Philip Murray, president of the CIO and the United Steelworkers, speaking at a union meeting in Boston last week, reiterated his pledge that the steelworkers would stand by their no-strike contract, despite the refusal of the companies to meet the union's wage demands.

The United Electrical workers have extended their contracts with the big electrical manufacturing companies, but a strike against the electrical industry is possible or even probable.

The outcome of the Chrysler stoppage unquestionably will set the pattern for the automotive industry.

Outlook Dark—Comments by union leaders and industry men as the strike started gave little promise of early settlement. Norman Matthews, head of the Chrysler UAW local, said: "We will give them the toughest strike they have ever seen."

Company circles expressed the fear the strike might drag on most of the summer. Telegrams were sent to Chrysler suppliers as follows: "Imperative you hold further shipments to us but we look to you to protect our future position by creating substantial inventory of raw material, especially steel, and holding for our exclusive use. Create specified vendor bank of finished material and hold for future shipments."

Just before the strike started, the union had dropped its wage demand from 30 cents to 17 cents an hour. Company had renewed its offer of 6 cents an hour.

In newspaper advertisements the company said it would not take the easy course of purchasing peace. "We do not believe that in the long run it will do any good for our employees or for anybody else connected with this company for us to try to purchase peace with the union at this time."

Idleness as result of the Chrysler strike may reach 150,000, about half of which are employed by suppliers.

Railroads Under U. S. Control—Meanwhile the nation's railroads are operating under control of the United States Army, after being taken over by the government May 10 on the eve of the threatened railroad strike.

Steel Producers Warn Union on T-H Compliance

Basic steel producers have notified the United Steelworkers of America-CIO that they will not negotiate new contracts unless the union first complies with the non-Communist provision of the Taft-Hartley Act, according to Philip Murray, president of the union.

The steelworkers' union has been the nation's major holdout against the Taft-Hartley law; the union executive committee has voted not to use the facilities of the National Labor Relations Board under the act and is seeking a court test of the constitutionality of the law.

Most steel wage contracts run until April, 1949, and the stand taken by the companies will not affect current contracts. It may have serious effects on 1949 bargaining.

Present, Past and Pending

■ TWO GOVERNMENT OFFICES MERGED
WASHINGTON—Office of Materials Distribution has been consolidated with the Office of Domestic Commerce. H. B. McCoy, who has directed both of them, will continue in charge of the consolidated unit.

■ ROCKFORD, ILL., PLANT OFFERED FOR SALE
CHICAGO—The Rockford, Ill., war surplus plant leased to Sundstrand Machine Tool Co. until Apr. 1, 1950, is offered for sale by War Assets Administration, with occupancy available at expiration of the present lease. Bids are being accepted by WAA's real property office, Navy Pier, Chicago, until June 30.

■ GE PUTS JET ENGINE CENTER INTO OPERATION
LYNN, MASS.—General Electric Co. has put into operation its new $25 million center here for development, testing and production of aircraft jet engines.

■ HOFFMAN TO RESIGN AS CED CHAIRMAN
NEW YORK—Resignation of Paul G. Hoffman as chairman of the Committee for Economic Development, New York, will be accepted and his successor announced at a dinner to be given in his honor Thursday in New York by CED trustees. The resignation results from demands on his time by his new position, administrator of the Economic Co-operation Administration.

■ McGILL COMPANY CUTS BEARING PRICES
VALPARAISO, IND.—McGill Mfg. Co. Inc. has made reductions averaging 15 per cent on roller bearings.

■ CHERRY-BURRELL CO. BUYS FOUNDRY
SHEBOYGAN, WIS.—Sheboygan Foundry Co. has sold its plant here to Cherry-Burrell Corp., Chicago, which has leased the foundry since May, 1945.

■ YOUNG RADIATOR CO. PURCHASES PLANT
RACINE, WIS.—Young Radiator Co., this city, has purchased the Mattoon, Ill., plant formerly occupied by Atlas Imperial Diesel Engine Co.

Tighter Steel Supply Indicated

Warehouse men told more belt hitching necessary with steelmakers under strain to meet aid and defense needs though overall outlook is not as black as painted

FURTHER tightening in steel supply will be experienced over coming months but the situation will not necessarily become so desperate as to warrant resort to mandatory allocations.

That was the consensus of various speakers at the 39th annual meeting of the American Steel Warehouse Association in Chicago last week. Both steel mill men and warehouse operators attending the meeting insisted that the difficult distributing problems confronted can best be worked out by the industry itself working closely with consumers.

As a matter of fact, the outlook for supply has been painted blacker than it really is. David F. Austin, sales vice president, United States Steel Corp. of Delaware, Pittsburgh, told the 400 distributors attending the meeting that impact of European requirements, allocations for critical domestic programs, and the national defense over the remainder of this year will be substantially less than many persons have been led to believe.

Take Another Hitch—The added burden of these programs on steel supply will make it necessary for most manufacturers to take another hitch in their belts, Mr. Austin said, pointing out that the combined steel needs of the European, domestic allocations and national defense programs will total somewhere between 17 or 17½ million tons of steel.

"Were it necessary to divert any such tonnage as this from shipments to the remaining producers of civilian goods in this country, it would create an extremely critical situation," he said. "Actually, no such burden is involved, for the steel industry already is shipping somewhere in the neighborhood of 14 million tons to these same groups for the same purposes."

Domestic Allocations — Discussing domestic allocations, Mr. Austin said that to date various segments of important industries have been conferring with government agencies on their problems.

"The first program to be completely formalized is the domestic freight car program," Mr. Austin said. "It is known as Voluntary Plan No. 1 and is now in operation. It calls for the steel industry to provide approximately 750,000 tons per quarter to make possible a substantial maintenance and repair program, as well as the production of 10,000 new freight cars per month.

"The atomic energy program has been established as Voluntary Plan No. 2. While not as yet formalized, its requirements for the next eight months have been established at 160,000 tons with 135,000 of the total scheduled for shipment in the third and fourth quarters of this year.

DAVID F. AUSTIN
Vice president, United States Steel Corp. of Delaware

Petroleum Industry Needs—"The petroleum industry also has now formally filed its report with the Department of Commerce. You have all seen the publicity which some weeks ago identified these requirements on an annual basis as being in excess of 10 million tons. The press reports, however, were somewhat misleading; for the petroleum people, in an effort to present a comprehensive picture, included in their initial report requirements for such allied needs as containers, tankers, and tank cars, as well as a myriad of other end products not normally considered as being specifically part of this industry."

That the present generation in the steel warehouse industry may never again see normal times, was the view expressed by Walter S. Doxsey, president of the warehouse association. Actually what many consider normal would be utopia characterized by voracious demands from customers, ample supplies of steel, price stability and untaxed profits, a quiescent and harmonious labor situation, competition that is just good, clean fun, and subsidies from paternalistic steel producers.

The normal procedures for pricing steel were developed before the war and they were in harmony with mill pricing factors consisting of mill base prices and a few mill extras, the speaker said. Warehouses didn't need a book of extras as big as a telephone directory or a mechanical calculator to determine their selling prices. Most of the commonly used sizes were available at base prices and so were other mill services incidental to production and shipping of an order. Today, however, virtually no steel mill products can be had at published mill base prices. Every size of hot-rolled bars takes a size extra. This is also true of other commonly used products.

Amateur Pricing — "Present mill pricing methods suggest an amateur salesman trying to include a new overcoat or a new suit in every one of his expense accounts," Mr. Doxsey said. "This anomaly of putting a mill base price on a product and having none of that product available at that price will most certainly introduce innovations into warehouse pricing practices.

The role of government in labor relations was discussed at the meeting by Cyrus S. Ching, director, Federal Mediation & Conciliation Service.

Also prominent on the 2-day program was Dr. George S. Benson, president, Harding College, who eloquently pleaded for industry to be on guard against those forces seeking to change the American system to a philosophy of life which would rob the individual of his freedom.

Economic Situation — James D. Mooney, chairman and president, Willys-Overland Motors Inc., Toledo, in a talk "What Kind of Money," gave a realistic appraisal of the economic situation today especially as it is affected by government fiscal and money policies.

A feature of one session of the meeting was the presentation of slides showing industry progress over the past year or so in the way of new plant and facilities. New facilities shown included those of Crucible Steel Co. of America, Hickinbotham Bros. Ltd., Stockton, Calif.; Marsh Steel Corp., North Kansas City, Mo.; Indianapolis Machinery & Supply Co., Indianapolis; Paterson-Leitch Co., Cleveland; Woodbury & Co., Portland, Oreg.; U. S. Steel Supply Co.,

St. Louis plant; Peden Iron & Steel Co., Houston, Tex.; Williams & Co., Cincinnati plant; Joseph T. Ryerson & Son Inc.; Brace-Mueller Co., Syracuse, N. Y.

Mr. Doxsey was re-elected president and the following vice presidents were elected: H. V. Douglas, Central Steel & Wire Co., Chicago; F. H. Lovejoy, Wheelock, Lovejoy & Co. Inc., Cambridge, Mass.

F. C. Flosi, A. M. Castle & Co., Chicago, was re-elected treasurer, and E. D. Graff, Joseph T. Ryerson & Son Inc., Chicago, chairman of the executive committee.

The 1949 convention will be held in Atlantic City.

J&L Sues Brokers for Gray Market Offer

STEEL producers lashed out at gray market operators in steel last week in two court actions filed at Detroit and Chicago. The complaints were filed by Jones & Laughlin Steel Corp., Pittsburgh, against Harry C. Edwards, Detroit, and Howard Kimble, Chicago, an associate of Edwards.

Edwards and Kimble are charged with offering to sell 7500 tons of J & L ingots per month, for a period of a year, to Ford Motor Co. at a gray market price of $75 a ton. Published mill price at the time the offer was made was $36 a ton.

According to the complaint, the defendants claimed to have control of twice that amount of ingots at J & L. The company charges the representations of Edwards and Kimble were untrue and damaging to the reputation and goodwill of the company. Damages in excess of $100,000 are asked.

The complaint relates that Edwards and Kimble approached the Ford Motor Co. with their offer of ingots. Ford purchasing executives contacted J & L and told of the offer. Arrangements were made between Ford and the steel company to have Herbert Johnson, assistant to the vice president in charge of sales at J & L sit in at a conference between Ford purchasing officials and the brokers. Johnson was not identified to the brokers as a J & L representative and Edwards and Kimble assumed he was a member of the Ford organization. At this conference the Apr. 12 ingot sale offer was repeated.

Affidavits filed by Ford and J & L officials state that the company does not sell ingots; that Edwards and Kimble are unknown to J & L; that no arrangement exists with them or anyone else for the sale of J & L ingots.

Furnace Men Plan for Defense

Committee to draw up war mobilization plan named by Industrial Furnace Manufacturers Association. New president advocates rapid equipment depreciation

TWO MEASURES aimed at strengthening the country's war potential were outlined at the 18th annual meeting of the Industrial Furnace Manufacturers Association Inc. at Hot Springs, Va., May 3-5.

Acting to prevent a repetition of the confused situation which occurred within the industry at the beginning of the last war, the group appointed an industry war mobilization committee to draft a plan for presentation to the Facilities Division of the Munitions Board. Heading this committee is the past-president of IFMA, William Adam Jr., Ajax Electric Co. Inc., Philadelphia.

CARY H. STEVENSON
Newly elected president, Industrial Furnace Manufacturers Association

The other suggestion, advocated as a means of promoting greater productive capacity for defense and for the European Recovery Program, provides for changed government tax policy to allow more rapid amortization of capital equipment.

Greater Understanding Needed — IFMA's new president, Cary H. Stevenson, vice president, Lindberg Engineering Co., Chicago, said such a policy has the support of both major political parties but "has been neglected because of lack of understanding of its importance and of the benefits obtainable." He regards its adoption "a most important defense measure of great value to the country whether or not war comes."

Present tax laws require depreciation over twenty years on heat treating and melting furnaces and machine tools. Change to a three-year depreciation period during which time full reserves for replacement of the equipment would be accumulated would stimulate modernization and expansion of the country's productive capacity. Such a policy, Mr. Stevenson believes, would encourage use of modern automatic high-speed equipment which would raise productivity and improve working conditions. In the case of industrial furnaces and ovens, it would effect a savings in heating gas, oil and electric power by promoting use of modern, efficient units. It would, furthermore, tend "to smooth out government income, decreasing it during times of business expansion and increasing it relatively during times of low industrial activity, because lower depreciation charges during such times mean higher profits and more taxes."

Business Outlook Bright — As the result of a quarterly survey of trends of inventories, deliveries and prices conducted by the association, the group was told that the business conditions in the industry over the remainder of the year are expected to be as good as, or better than, at present.

Other features of the meeting include a talk by Joseph Gray Jackson, William Steell Jackson & Sons, Philadelphia, outlining some of the pitfalls in patents and using specific cases to show what may and may not be done with patents under different conditions. Hal Burnett, editor, *Industrial Marketing*, presented analyses of advertising of several IFMA member companies during the past six months. A report on IFMA's prize contest for the best descriptive articles on modern industrial furnace and oven installations appearing in the trade press was also made.

New Directors — Elected to two-year terms as IFMA directors were the following: J. J. Walker, C. I. Hayes Inc., Providence, R. I.; J. Earl Frazier, Frazier-Simplex Inc., Washington, Pa.; F. W. Brooke, Swindell-Dressler Corp., Pittsburgh; and D. A. Campbell, Bryant Heater Co., Cleveland.

Subsidy for New Iron Ore Boats Sought

MODERNIZATION of the Great Lakes iron ore fleet through federal government subsidy is being sought by a dozen steamship companies.

Their first action in this unprecedented peacetime move was to apply to the U. S. Maritime Commission for a trade-in value on 35 boats. During the war, lakes ship owners received trade-in allowances for old vessels, but peacetime use of this type of government subsidy has been confined to the ocean-going merchant marine.

Urging the companies to file for government help was Rep. Alvin F. Weichel (Rep., O.), chairman, House merchant marine committee, who argues that new ships are needed to supply the steel industry with sufficient ore. Objective this year, he said, is to obtain government trade-in money to start construction on 20 new lake ships. However, C. H. McDaniel, chief, government aids division, Maritime Commission, said a decision on the applications would not be reached for some time inasmuch as there is now no money for such trade-in allowances.

Operators receiving such an allowance agree to use the funds for new ship construction. The government sells the old vessels for scrap, taking a substantial loss. Mr. McDaniel said the average trade-in allowance by the government for old ships was about $60 a ton, or from a fifth to a fourth of the cost of new ship replacement.

The ore fleet consists of 257 ships, 70 per cent of them between 20 and 40 years old.

Included among companies applying for trade-in allowances are: Columbia Transportation Co., Cleveland Cliffs Iron Co., Kinsman Transit Co., Buckeye Steamship Co., Midland Steamship Line, Reiss Steamship Co., Interlake Steamship Co., Wilson Transit Co., Pioneer Steamship Co., Great Lakes Steamship Co., all of Cleveland, and the Mahoning Steamship Co. and Bethlehem Transportation Co., both of New York.

Ferro Enamel Corp. Holds Furnace School

Problems connected with successful operation of enameling furnaces used in manufacture of refrigerators, stoves, washing machines and plumbing appliances were discussed at a furnace school sponsored by Ferro Enamel Corp., Cleveland, May 11 and 12. Attending the two-day session were more than 40 maintenance men from manufacturing and jobbing concerns.

Continuous furnace maintenance costs and methods of minimizing them received close attention. E. W. Dany, chief engineer, Ferro Enamel Corp., warned that in most instances manufacturers will find it cheaper to keep their furnaces operating over weekends and holidays.

Specific maintenance and operating hints were given for refractory muffle, radiant tube and electrically heated furnaces.

FTC Expects To Rest Steel Case in June

THE GOVERNMENT expects that it will practically complete by June 15 its presentation of evidence of an illegal price agreement in the steel industry, according to Lynn C. Paulson, trial attorney for the Federal Trade Commission. Hearings have been recessed to May 24 and are expected to stretch through that week and the week of May 31, after which the government will rest for a recap-

Facts for Industry . . .

(As reported by government agencies)

Oil Burners—Factory shipments of oil burners in February dropped to the lowest monthly level in over two years, at 24,917 units. This was 40 per cent less than were shipped in January. Of the total, residential type accounted for 22,473 units, with the remaining 2,444 being commercial and industrial types. Order backlogs declined 10 per cent from January to 134,901 units, which figure is 87 per cent under unfilled orders at the end of February, 1947. *Census Bureau, Commerce Dept.*

Porcelain Enameled Products—Value of selected porcelain enameled metal-base products manufactured in February was $4.5 million during February, compared with $4.6 million in January. The February total included $905,396 worth of goods enameled on a jobbing basis and $3,595,480 worth of finished enameled products. *Census Bureau, Commerce Dept.*

Water Heaters—Shipments of nonelectric water heaters totaled 159,134 units valued at $6.8 million in February, a decrease of 10 per cent from the 176,736 units shipped in January. February production was also down to 165,013 units from 182,034 in January. Direct-fired water heaters accounted for 89 per cent of total production. *Census Bureau, Commerce Dept.*

Domestic Heating Stoves—February production of heating stoves was 351,333 units, 15 per cent less than was produced in January. Shipments, totaling 261,925 units valued at $6.5 million, were also substantially below the 316,254 units and $7.6 million value of January. Gas heating stoves accounted for 45 per cent of total production; kerosene, gasoline and fuel oil stoves for 40 per cent; and coal and wood stoves for 15 per cent. *Census Bureau, Commerce Dept.*

Car Registrations—A total of 37,402,230 privately owned cars and commercial vehicles was registered in the United States last year. This was 10.2 per cent above 1946 registrations. Automobiles and taxis accounted for 30,750,568 units. In addition, 434,741 motorcycles and motor scooters were registered, 39 per cent more than in the previous year. *Public Roads Administration, Federal Works Agency.*

Malleable Iron Castings—At 86,767 short tons, shipments of malleable iron castings in March were the largest since the series was started in 1923. March shipments were 15 per cent above the February total. Of the March total, 58 per cent were shipped to the trade and the remaining 36,750 tons were for the producers' own use. New orders booked, less cancellations, for sale to the trade were 43,921 tons in March, 5 per cent less than bookings in February. *Census Bureau, Commerce Dept.*

itulation of the record. After that it will quickly fill in any gaps found to exist.

The cross-examination of Walter S. Tower, American Iron & Steel Institute president who was on the stand when the hearings were recessed on May 7, was concerned largely with the steel industry's splendid record of co-operation in the public interest. It was shown that on all occasions, without exception, when the institute and the industry have been called on for co-operation they have responded fully. Such co-operation as that extended to the War Production Board, Army and Navy during World War II was stressed. Mr. Tower is to be recalled for further cross-examination.

A break for the respondents' attorneys came when Trial Examiner Frank Hier ruled they are entitled to a more extensive cross-examination of the various steel company witnesses, mainly sales executives, who vouched for the authenticity of extra cards, price announcements and other price data submitted by their companies in response to subpoenas issued by the FTC. The steel company attorneys will seek to show there was no collusion in the compilation and publication of extra cards and price announcements. They wish to show also that the announced prices and extras were not always adhered to.

During the hearings to start May 24, Mr. Paulson's major effort will be to introduce in the record a large number of charts showing the locations of basing points for the various products, together with capacity of plants at the various locations, plus names of the companies owning and operating these plants.

HITS BASE PRICING

United States Circuit Court of Appeals, Seventh Circuit, Chicago, last week upheld an order of the Federal Trade Commission forbidding the rigid steel conduit industry from selling conduit on the basing point price system heretofore used by the industry. Opinion was handed down by Judge Otto Kerner and concurred in by Judges William Sparks and Sherman Minton. The court said an enforcement decree will be entered in line with the opinion. Decision of the court followed the recent ruling by the United States Supreme Court in the cement case.

Steel Export Decline Continues

TONNAGE of iron and steel products exported by the United States continued to decline substantially in February, and at 430,954 net tons was well below the monthly average of 549,274 net tons in 1947.

As in previous months the leading export product, tonnagewise, was tin plate and tagger's tin, accounting for 54,407 net tons. Black steel sheets were next at 44,019 net tons, followed by unfabricated plates, other than boiler, at 32,326 net tons, standard rails 32,287 net tons, and hot-rolled carbon steel bars 31,857 net tons.

Details of American ferrous exports as reported by the Department of Commerce are shown in the table below.

Total U. S. exports were higher in March, reaching $1141 million compared with $1086 million during February, but were 11 per cent below the 1947 monthly rate. According to the department the export increase centered in machinery and vehicles, meat and meat products, and textile fibers and manufactures.

While exports are generally below last year's level, imports have been above the 1947 average, and in fact in March reached a new peak of $666.2 million. This compares with $582 million in February, $545.8 million in January, and a monthly average in 1947 of $477.6 million.

Import gains were widespread, textile fibers and manufactures and wood and paper products leading the rise. Only in inedible animal products and chemicals were declines noted.

Exports of nonmetallic minerals were valued at $103.7 million in March, metals and manufactures, except machinery and vehicles, at $106.8 million, and machinery and vehicles at $366 million. Imports of these categories in March were, respectively: $62.5 million; $65.7 million; and $14.3 million.

U. S. EXPORTS OF IRON AND STEEL—FEBRUARY

(Net Tons)

	Year 1947	January 1948	February 1948
Semi-Finished and Finished Products:			
Ingots, blooms, billets, slabs, sheet bars	490,765	41,590	27,677
Wire rods	71,237	4,834	4,129
Skelp	67,403	5,969	4,552
Iron bars	34,755	1,032	368
Concrete reinforcement bars	248,205	13,924	11,243
Steel bars, cold finished	106,301	6,899	5,239
Other steel bars (excluding alloy)	535,421	39,797	31,857
Alloy steel bars	207,999	14,270	5,508
Welding rods, electric	14,844	945	1,306
Boiler plate	32,560	2,361	3,217
Other plates, not fab.	530,265	37,002	32,326
Plates, fab., punched or shaped	37,231	2,208	1,151
Iron sheets, black	30,216	1,828	2,220
Steel sheets, black	568,867	42,308	44,019
Galvanized sheets	74,603	4,396	4,115
Strip steel, cold rolled	89,621	6,587	5,122
Strip steel, hot rolled	106,850	7,346	7,264
Tin plate and tagger's tin	609,509	55,168	54,407
Terne plate (incl. long ternes)	12,851	646	513
Structural shapes, plain	754,182	29,813	28,946
Structural shapes, fab.		17,347	12,088
Frames and sashes	42,830	176	279
Sheet piling		5,112	4,106
Rails, 60 lb. per yard and over		42,445	32,287
Rails, less than 60 lbs. per yard	500,584	752	414
Rails, relaying		5,950	1,033
Splice bars and tie plates		13,085	6,750
Frogs and switches	157,820	1,220	425
Railroad spikes		1,163	1,059
Railroad bolts, nuts, and washers		787	598
Car wheels, tires and axles	88,646	3,702	3,472
Seamless black pipe	18,723	1,419	1,568
Seamless casing and oil line pipe	333,498	14,307	17,773
Seamless boiler tubes	69,955	4,526	3,090
Welded black pipe	91,133	5,227	6,701
Welded galvanized pipe	70,221	3,821	3,391
Welded casing and oil line pipe	*	12,916	23,206
Welded boiler tubes	*	123	69
Other pipe and fittings	101,853	6,564	6,933
Plain wire	84,382	6,572	6,377
Galvanized wire	101,026	7,830	3,412
Barbed wire	78,864	7,251	3,661
Woven wire fencing	12,378	1,300	1,315
Woven wire screen cloth	5,986	477	488
Wire rope and strand	30,785	1,128	1,452
Wire nails	25,755	1,794	1,781
Other wire and manufactures	52,068	5,182	3,595
Horseshoe nails		89	92
Tacks	15,995	347	348
Other nails, incl. staples		1,191	827
Bolts, nuts, rivets and washers, except railroad	48,325	5,489	5,039
Forgings	35,870	2,515	2,139
Horseshoes	900	37	7
TOTAL	6,591,282	500,767	430,954

Source: United States Department of Commerce.

* Included with seamless

Windows of Washington

By E. C. KREUTZBERG *Washington Editor, STEEL*

Hot fight is on to get Justice Department to remove its ban on appointment of trade association executives to industry advisory committees

A HOT behind-the-scenes fight is going on in Washington to get the Justice Department to remove its ban on appointment of trade association executives to industry advisory committees with which the government has dealings. Protests have been made to the Justice Department itself where, it is said, nobody below the attorney general personally feels he has any authority in the matter. In addition, protests are raining in on members of Congress. The protestants, of course, are trade association officers, and the complaints have been coming in particularly from groups at Cleveland and Pittsburgh.

The trade association men take this general attitude: "We know our industries; that is why we are paid by our associations. We know our industries better, as a rule, than any single member of those industries. We have the statistics, the contacts, and we are informed about the policies of individual producers. Furthermore, we have the time to devote to representing our industries. Therefore, when the government wants anything from an industry, the trade association executives ought to be called in—at least in the capacity of advisers and observers."

The Justice policy ruling dates back to New Deal days and seems to have originated in a fear that trade associations may be actual or potential hotbeds of agreements and conspiracies to control prices and otherwise restrain trade—and that therefore the government should have its dealings with the manufacturers themselves rather than with the trade associations.

Wink at Policy—Most departments and agencies ignore or wink at the Justice policy. The War Production Board and Office of Price Administration leaned heavily upon trade association men, at least unofficially, to accomplish their tasks during World War II. Most government units make no bones about calling in trade associations. Interior Department follows that practice right along; when it recently was called on to estimate steel requirements of the petroleum industry, for example, it turned the job over bag and baggage to the officers and directors of the National Petroleum Council. The Navy deals with various trade organizations, notably the Navy Industrial Association. The Air Force deals with many associations, particularly the Aircraft Industries Association of America. The Army deals with many associations, and particularly with the Army Ordnance Association. Agriculture finds that it can get things done effectively and expeditiously by calling in the secretary or manager of one or more agricultural associations rather than groups of farmers, dairymen, cattle men, sheep men, etc. The Munitions Board has at least half a dozen trade association executives on its industry advisory committees.

The current wave of criticism has been stirred up largely by the exclusion of trade association men from the meetings in the Commerce Department held for the purpose of setting up voluntary allocations agreements under Public Law 395. Trade association men are especially galled because in a number of cases they have advised with Commerce officials in advance of meetings—and then have been denied the opportunity even to sit in at these meetings. The Commerce Department, in setting up regulations for the Office of Industry Co-operation last January, ruled that the industry committees called in under Public Law 395 must consist of the industrialists themselves, with no provision for trade association executives, and no recognition of the trade associations as such.

One of the reasons behind this Justice Department attitude, of course, is the fear that the government, by inviting trade association executives into these industry advisory meetings, would give added prestige to trade associations and, in fact, practically force all companies in an industry to become members of the trade association of that industry in order to be "in the know."

Anomalous Attitude—Trade association men point out that this attitude, to say the least, is anomalous in the case of the Commerce Department. For Commerce, while denying trade association men access to industry advisory committee meetings of the Office of Industry Co-operation, at the same time is encouraging trade association activities through its Trade Association Division. First organized by Herbert Hoover when he served as secretary of commerce, this division languished during the war but since has been reinvigorated on the theory that business and industry are more efficient and contribute more effectively to our economic needs when served by a live trade association.

"That," one trade association man remarked to STEEL, "is what you might call talking out of both sides of your mouth at the same time."

Trade association men have one criticism of the OIC policy which, brought out into the open, might prove to have repercussions. It is one that might well lead to hearings and strong expressions from members of Congress.

"When the OIC invites industrialists to attend its industry meetings it does its own deciding as to who will be invited," one trade association executive remarked in reference to this particular complaint. "If you examine the list of names of those invited you will find that the leaders of the industry and a number of small interests are included. In other words, the group invited is a selected one and by no means includes the whole industry. Just what factors are considered in determining the selection I do not know. However, the end result is that a selected few people from an industry are called into the meeting to discuss or perhaps decide matters of moment to everybody in the industry. And yet the industry in general, and particularly the small concerns have no way of informing themselves as to what happened. The only information that is made public is a news release which may or may not be complete as to what took place.

"So exclusion of the trade association executives has the effect of discriminating against large numbers of interested people by denying them important information which is imparted to a favored few. This discrimination becomes more pronounced when the OIC later names the members of industry advisory committees. Obviously the way to cure that situation is to have the trade association men in on all the meetings. They can give valuable as-

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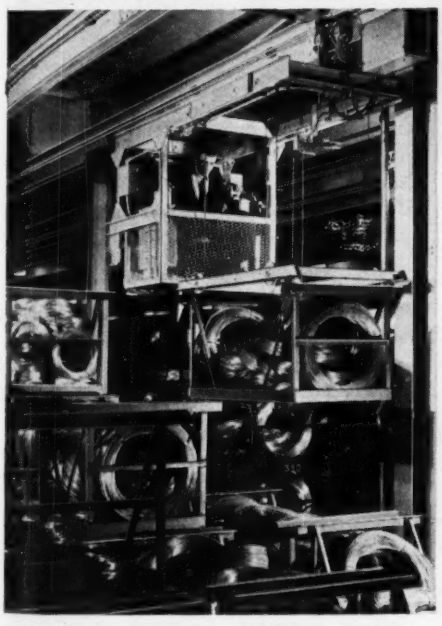

Operator of MonoTractor Carrier can deposit or select racks of wire at any spot in the warehouse.

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sistance along advisory lines, in addition to sitting in as observers.

"As to the charge that such recognition would tend to force companies to join the trade associations in their industries," he added, "that is the bunk. Almost without exception, all companies in the different industries are members of industry trade associations; there are very few lone wolves."

ECA Organization Develops

Organization of a staff to administer the United States multibillion dollar program to promote European recovery moves forward under Paul G. Hoffman, administrator of the Economic Co-operation Administration.

From the Massachusetts Institute of Technology Mr. Hoffman has drawn Prof. Richard M. Bissell Jr. to serve as assistant deputy administrator of ECA. Mr. Bissell, 38, has been serving as a consultant to ECA. He has had considerable government service experience, as well as having served as consultant for various corporations. In addition he has written numerous articles on economics.

For comptroller, Eric L. Kohler, age 55, a consulting accountant in Chicago, has been selected. From 1928 to 1931 he was comptroller for the Tennessee Valley Authority. Formerly a professor of accounting at Northwestern University, Mr. Kohler served in wartime government posts, and also has written extensively in the field of accounting and tax administration.

Another appointment is that of Roger D. Lapham, 64, to be chief of ECA's special mission to China. From January, 1944, to January, 1948, he was mayor of San Francisco. Previously he had been chairman of American Hawaiian Steamship Co.

Five additional countries — the United Kingdom, Belgium, Iceland, Ireland and China—filed letters of intention and have qualified for assistance under the Foreign Assistance Act, bringing the total number of countries which have so qualified up to 11.

In response to many requests from businessmen as to how they can be sure their products will be considered for shipment under the recovery program, the ECA and the Department of Commerce issued a joint statement that American exporters will continue to do business in the same way as in the past.

Exporters who have established business contacts with agents and distributors in Europe should continue to solicit business in their usual manner. The European importer will consult with his government regarding the need for a particular product as part of the recovery program, and European governments will, in consultation with U. S. government agencies, program requirements to be paid for with ECA funds. The European importer will obtain permission from his government to pay for his goods with dollars that are set aside for ERP purchases. The European importer—not the U. S. exporter—will initiate the action in requesting permission to use ECA dollars to pay for a shipment.

When the U. S. exporter receives an order from an importer in an ERP country, he will apply to the Office of International Trade for an export license, if one is needed. There is no assurance an export license will be granted solely because an importer in an ERP country has his government's permission to pay for a shipment with ECA dollars.

The ECA is concerned primarily with providing financing to ERP countries, with helping determine how the funds shall be used, and with keeping account of the funds used.

To Begin Plane Procurement

Promptly on learning of the Senate's approval of the House-passed bill to expand the military air arm to 70 groups, Air Force procurement officers announced that they would start ordering at once in order to get earliest delivery on the enlarged number of planes. The procurement program calls for 2727 new aircraft to be delivered starting with next January, and an additional 2100 planes to be delivered by July 1, 1950. (For other details of the 70-group Air Force program see STEEL of April 26, p. 75).

Seek Nonferrous Metals

Coming under more active consideration by interested government departments and agencies are plans for stimulating increased production of scarce nonferrous metals, both to meet increasing consumption and to permit larger stockpiling programs. Main reason for expecting larger consumption is the expanding rearmament program, and particularly the newly authorized 70-group Air Force.

Nonferrous industry spokesmen have recommended to the Munitions Board that it set up more diversified grade specifications under which it could procure grades of ores not now permissible; this plan also visualizes the placing of long-term contracts. This not only would help the stockpiling program, industry men feel, but would result in an overall increase in production.

The need for more aluminum has focused attention on the shortage of power, and ways and means of finding additional power for this industry are under study.

One of the plans now being studied is that of pushing foreign production of needed minerals.

New deputy administrator of Economic Co-operation Administration, Howard Bruce, left, is sworn in at Washington, with Judge Bennett Champ Clark of the U. S. Court of Appeals for the District of Columbia administering the oath. Looking on are Paul G. Hoffman, ECA administrator, and W. Averell Harriman, ECA roving ambassador. NEA photo

Move To Get German Scrap Hits Snags

DUSSELDORF, GERMANY

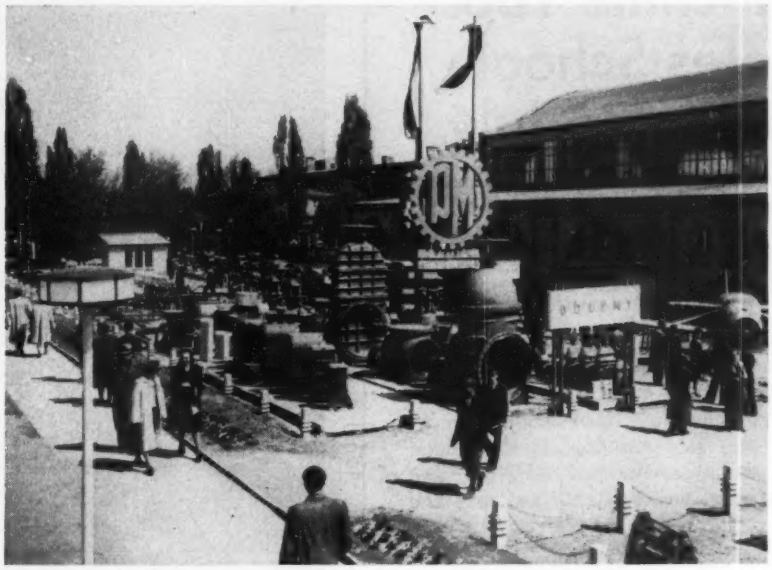
ALTHOUGH some 10 million tons of scrap are available in bizonal Germany, according to estimates of the American Iron & Steel Scrap Commission, American efforts to obtain this material remain hamstrung by wrangles over the meaning of "war booty scrap," processing equipment shortages and apathy of German scrap dealers, largely induced by the present currency muddle.

Both the American and British claim on considerable tonnages of German scrap is based on the term "war booty," a phrase describing former war materials which become the property of the victorious powers. The British have given far more comprehensive meaning to the words than have the Americans, although it is reported the American Military Government is considering liberalizing its interpretation in order to obtain more. Chief argument against such a course is that this action would unduly antagonize when it would be largely fruitless anyway since the Americans, like the British, would encounter shortages in preparation equipment, transportation and labor which would make it impossible to process and ship the additional material obtained.

Currency Reform Paralyzes—The impending currency reform is paralyzing business in Bizonia, particularly in scrap. Scrap prices are being increased RM 7.00 per ton, the first boost since 1936, but this is not enough. Even if it were, cautious German business men would probably wish to test first the direction of the currency reform wind.

Better collection results, however, are anticipated from a scheme to grant additional food, clothing and shoes to scrap workers, and to give foreign exchange bonuses to the German scrap dealers. First direct action has come from the Allied Export Control Council which has included scrap in an export bonus plan whereby foreign exchange is paid to exporters as a stimulus. Impetus has been given this decision by making it retroactive to Jan. 1, 1948.

German business people have raised this question: What sense is there in exporting scrap when this very material will soon be used by us in stepping up our steel production to the proposed six million tons? The boost in German steel output will entail an additional monthly scrap requirement of 60,000 to 70,000 tons.



POLISH MACHINERY FAIR: Machinery manufactured in the state-owned factories of Poland is exhibited at the Posen fair, the second postwar international exposition held in the Polish city. Largest foreign exhibitor was Russia, which displayed machinery and motorcars. NEA photo

U. S. Dealers To Organize For German Scrap Buying

Action is needed now in getting German scrap to this country, and because formation of a government corporation to direct this work would take too long a private American corporation to engage in this work will be organized by domestic scrap dealers. This move was indicated by Alex Miller, chairman of the Interdepartmental Ferrous Scrap Committee of the Office of Industry Cooperation, as a partial solution to the critical scrap shortage, which according to Commerce Department officials is the most pressing industrial problem in the country today.

Meeting in Washington recently to discuss the government's role in providing relief from the scrap famine were representatives of the Army, Navy, State and Commerce Departments, the National Resources Planning Board, War Assets Administration, and the Maritime Commission. Others present included L. D. Greene and Edwin C. Barringer of the Steel, Foundry and Scrap Industries' Committee for Expediting Iron & Steel Scrap.

Mr. Miller, named by the group following its meeting to chairman IFSC, said final plans for the private corporation which will do the actual scrap buying are now being discussed and its immediate goal will be recovery of one million tons of iron and steel scrap from Germany.

At the meeting it was reported by Maj. Gen. Orval R. Cook, deputy director of logistics, General Staff, that the U. S. occupation forces in Germany are selling 75,000 tons of scrap, mostly tanks containing a large percentage of alloy steel.

John L. Tappin, executive assistant to the Under Secretary of Commerce, said government agencies henceforth will make monthly progress reports to the Commerce Department concerning scrap made available to commercial markets.

Members of IFSC are: Rear Admiral Morton L. Ring, vice chief; Commander Frank Roberts, Office of Naval Material; Isaiah Frank, Office of International Trade Policy, Department of State; John C. Ten Eyck, deputy administrator, and Donald E. Kidston, alternate, Office of General Disposal, War Assets Administration; Charles D. Marshall and James L. Pimper, Maritime Commission; John Cronston, National Security Resources Board; Lt. Col. S. M. Pool Jr., Service, Supply & Procurement Division, Department of the Army; and H. B. McCoy, director of the Office of Domestic Commerce.

Associated with Mr. Miller on the foreign scrap procurement program are General Cook, Colonel Pool, Mr. Frank and Elliott S. Hanson and Joseph J. Palmer of the Department of Commerce.

Machine Tool Sales School Opens in July

SCHOOL STARTS again for salesmen of the machine tool industry when the first course in an "unprecedented" sales training program is launched at Cornell University July 12.

When the unique program was first announced by Tell Berna, general manager, National Machine Tool Builders' Association, Cleveland, he said that to his knowledge this would be the first time a school has been developed "to improve the selling of an entire industry."

The program, developed over many months by NMTBA, American Machine Tool Distributors' Association, industrial machine tool users and Cornell University, aims at placing the tool salesman in the position of technical consultant to users and at shifting sales emphasis from initial cost to cost per unit of production. Sales effort, as a result of the course, is expected to be directed toward "front office" management, rather than production men, who, it is conceded, are already firm believers in the value of new tools in the battle against rising costs.

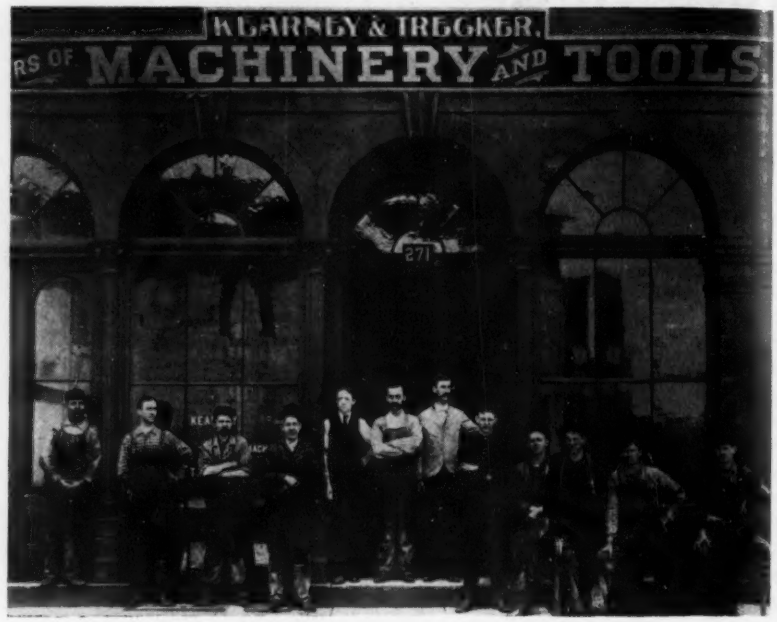
The course, which will run from July 12 through July 23, will be held in Cornell's Sibley College of Engineering, Ithaca, N. Y. Each day's program will conclude with a discussion period.

Program Announced — On Monday, July 12 at 9 AM, Dean S. C. Hollister, Cornell's dean of engineering, will welcome the students. His remarks will be followed by an "Introduction to the Course" by Prof. Harry J. Loberg, Department of Industrial & Engineering Administration, Sibley School of Mechanical Engineering. "The Four Fundamentals—The Scope of the Course" will be presented by James C. Hebert, sales manager, Jones & Lamson Machine Co. Harry Ehrlicher, vice president-purchasing, General Electric Co., will speak on "How the Machine Tool Salesman Looks to the Buyer."

"Survey of Machine Tool Buyers" will be presented by Herbert L. Tigges, executive vice president and sales manager, Baker Brothers Inc. Afternoon's session will be delivered by Dr. A. L. Winsor, director, School of Education, Cornell, whose topic is "Analysis of Customer Personality."

Tuesday's program will begin with "Personal Qualifications for Builders' Salesmen," by Charles Clark, assistant to the sales manager, Cincinnati Milling Machine Co. A discussion on "Personal Qualifications for Distributors' Salesmen" will be led by R. L. Giebel, chairman, sales and service committee, AMTDA, and president, R. L. Giebel Inc. "Origination of the Inquiry—Market Research" will be presented by Bernard Lester, consultant. "What Does the Buyer Want" and "What Should the Sales Engineer Know About any Particular Prospect" will be discussed by William J. Peets, chief engineer, Singer Mfg. Co., and Mr. Giebel, respectively.

Review Occurs July 14—Review of points developed on Monday and Tuesday will be made Wednesday morning, followed by "What Information Should the Sales Engineer Give?" by August Bohlender, vice president, Warner Gear Co. "Practical Illustration of Typical Situations" will be presented by E. K. Morgan, vice president—sales, Giddings & Lewis Machine Tool Co. Concluding talk by J. R. Weaver, Westinghouse Electric Corp., on "The Effect on Machine Selection of Quantity" will explore possibilities of combining lots for longer runs and grouping parts to reduce set-up time. Dinner that night will have as its toastmaster Daniel R. Weedon, chairman, NMTBA's sales and service committee, and assistant manager, Blanchard Machine Co. Speaker will be Dean Emeritus Dexter S. Kimball of Cornell on "Ma-



Celebrates Fiftieth Anniversary

DEWEY'S victory at Manila in April, 1898, inspired young mechanics Edward V. Kearney and Theodore Trecker to go into the machine tool business "on their own." Convinced that American success in the Philippines meant early peace, followed by business expansion, the partners launched their enterprise in a 1200 sq ft space at 271 Lake St., Milwaukee.

Photograph shows this establishment as of 50 years ago—with Mr. Trecker at left and Mr. Kearney at right in the doorway. On May 17, 1948, Kearney & Trecker Corp., one of the world's leading machine tool builders, celebrates its 50th anniversary.

In 1901 success of their milling machine business indicated to Kearney & Trecker that it was going to need a lot of "elbow room," so they built a new plant "way out in the country" at West Allis. This has grown to more than 14 acres and employs more than 1800 people.

From simple, belt driven models the line has grown into a wide variety of powerful motor driven millers which take full advantage of carbide cutters. Precision boring machines were added in 1942.

Edward Kearney died in 1934, but Theodore Trecker, now 80, lives to celebrate this Golden Anniversary. His son, Joseph, who succeeded him as president in 1947, died suddenly in October of that year. Another son, Francis, now is president.

chine Tools—the Master Tools of Industry."

Thursday morning's lectures will be delivered by E. Payson Blanchard, director of sales, the Bullard Co., and James C. Hebert, who will speak, respectively, on "Selecting the Equipment To Be Offered" and "The Economics of Installation." Afternoon's sessions will be "Man-Machine Charts," by Prof. C. I. Millard, department of industrial engineering, and "The Relative Importance of the Machine Tool" by Professor Loberg.

First place on Friday's program will go to Robert Haynes, manager, mechanical department, Spicer Mfg. Co., speaking on "Tooling Up the Job." Prof. K. C. White, Cornell's industrial engineering department, will discuss "Work Simplification." Afternoon session will be devoted to "Problem of Shop Layout" by Professor Millard.

Sales Procedure Is Topic—Sessions resume Monday, July 19, with "Sales Procedure—Basic Consideration" by E. J. Seifreat, president, Seifreat-Elstad Machinery Co. Earl R. McDonald, sales manager, Syracuse Supply Co., will follow with "Discussion of Methods of Approach to Customer." "The Interview" will be explained by Frederick A. Brechter, vice president, Vandyck Churchill Co. Mr. McDonald will begin the afternoon session with "The Technique of a Sales Engineering Interview," followed by Mr. Brechter's talk on "Sales Presentation to a Group." Review will be led by Mr. Seifreat.

Tuesday morning will be occupied with explanation of "Sales Procedure: The Written Word" by C. Denson Day, sales manager, Machinery Division, the Norton Co., and Arthur S. Kettle, vice president and manager, Machinery Division, Austin-Hastings Co. Professor Millard will conduct the afternoon session on "Finish Discussion of Milling Machine Problem." "Sales Strategy" will be explained by Swan E. Bergstrom, vice president, Cincinnati Milling Machine Co.

Advertising To Be Discussed—With Mr. Berna presiding, Wednesday's morning program includes "Selling Tools," by B. N. Brockman, vice president and sales manager, R. L. LeBlond Machine Tool Co.; "The Role of Advertising," by Allen L. Billingsley, president, Fuller & Smith & Ross Inc., "Responsibility of the Machine Tool Builder to the Machine Tool Distributor" and "Responsibility of the Machine Tool Distributor to the Machine Tool Builder" by George Habicht Jr., president and treasurer, Marshall & Huschart Machinery Co., and L. W. Scott Alter, president, American Tool Works Co., respectively: Afternoon discussions will be "Analyzing Failure" by Frank U. Hayes, sales manager, the Bullard Co., and "Meeting Objections" by J. F. Miller, sales manager, Machine Tool & Cutting Division, Ex-Cell-O Corp. A. G. Bryant, president, NMTBA, and vice president, Cleereman Machine Tool Co., will be toastmaster at that night's dinner, where featured speaker will be James E. Gheen, public relations counsellor, whose topic is "Machine Tools and the World Order."

"Handling Sales to Multi-Plant Customers" by Edward W. Voss, Voss Machinery Co., will head Thursday's program. R. A. Vidinghoff, vice president, Swind Machinery Co., will speak on "The Sales Engineer's Daily Activity," followed by "What Does It Cost To Sell?" by Thomas R. Rudel, president and treasurer, Rudel Machinery Co. Afternoon sessions will include a discussion on "Foreign Sales" led by Reed M. Andress, second vice president, Barnes Drill Co.; "Selling Abroad from a Banker's Viewpoint" by O. A. Jackson, vice president, Continental Illinois National Bank & Trust Co.; and "How To Sell the Government" by E. C. Adams, vice president, Van Norman Co.

Final sessions, Friday, July 23, will be presided over by H. E. Oatis, partner, Oatis-Booth Machinery Co., and will include "The Follow-Through After the Sale," "Finish Layout—Milling Machine Problem" by Professor Millard, review of suggestions from students, and a "Review of the Course," by Mr. Berna. Afternoon will be devoted to "Economic Analysis of Machine Tool Purchases" by R. T. Hurley, Ford Motor Co., a discussion led by Professor Loberg, and "The Role of the Sales Engineer in Our Industry" by A. G. Bryant.

WAA Reports Inventory Of $6 Billion Remains

With disposals of surplus war property now totaling approximately $23 billion in original cost, an estimated $6 billion worth of property remains in inventory, according to War Assets Administrator Jess Larson.

In his progress report for the first quarter of 1948, Mr. Larson said that his administration has now sold $13 billion worth of surplus on which sales realization was about $4 billion. About $9 billion worth has been transferred to other agencies, donated, scrapped or otherwise disposed of. Leasing arrangements have taken care of another $1 billion worth.

Disposal of the remaining $6 billion, Mr. Larson said, will be partly accomplished through increasing use of brokers, auction sales and multiple-sale or group ownership projects. Greater efforts are being made to liquidate inventories of aircraft components, and a growing percentage of personal property is being made available for screening by the Armed Services.

Calendar of Meetings . . .

May 19, Bituminous Coal Research Inc.: Annual meeting, Columbus, O. Group's headquarters are at 912 Oliver Bldg., Pittsburgh.

May 20-21, National Welding Supply Association: Annual convention, Sheraton-Coronado Hotel, St. Louis. Association headquarters are at 505 Arch St., Philadelphia.

May 20-21, Society of the Plastics Industry: Annual meeting, Atlantic City, N. J. Society headquarters are at 295 Madison Ave., New York.

May 24-25, National Association of Sheet Metal Distributors: Spring meeting, Deshler-Wallick Hotel, Columbus, O. Association executive secretary is Thomas A. Fernley Jr., 505 Arch St., Philadelphia.

May 25, American Society of Body Engineers: Dinner meting, Rackham Educational Memorial Bldg., Detroit. Society headquarters are at 100 Farnsworth Ave., Detroit.

May 26-27, American Iron & Steel Institute: 56th general meeting, Waldorf-Astoria Hotel, New York. Institute headquarters are at 350 Fifth Ave., New York.

May 27-29, Automotive Engine Rebuilders Association: 1948 annual convention, Hotel Statler, Buffalo. Association headquarters are at 415 N. Capitol Ave., Indianapolis.

May 27-29, Society for Experimental Stress Analysis: Spring meeting, Roosevelt Hotel, Pittsburgh. Society address is P.O. Box 168, Cambridge, Mass.

May 31-June 2, National Association of Purchasing Agents: Annual meeting, Waldorf-Astoria Hotel, New York. Association headquarters are at 11 Park Pl., New York.

May 31-June 5, American Society of Mechanical Engineers: Semi-annual meeting, Hotel Schroeder, Milwaukee. Society headquarters are at 29 W. 39th St., New York.

June 6-9, American Gear Manufacturers Association: 32nd annual meeting, The Homestead, Hot Springs, Va. Association executive secretary is Newbold C. Goin, Empire Bldg., Pittsburgh.

June 6-11, Society of Automotive Engineers: Annual summer meeting, French Lick Springs Hotel, French Lick, Ind. Society secretary and general manager is John A. C. Warner, 29 W. 39th St., New York.

June 7-11, Pittsburgh International Conference on Surface Reactions: Conference will be held at the Mellon Institute, Pittsburgh. Conference secretary is Richard Rimbach, 1117 Wolfendale St., Pittsburgh.

June 11-12, American Society of Metals: Sixth biennial Pennsylvania interchapter meeting of groups located wholly or partly in the state, State College, Pa.

June 16-18, Electric Metal Makers Guild: 16th annual meeting, Bethlehem, Pa. Secretary-treasurer of the organization is D. L. Clark, 39 Grasmere Rd., Lockport, N. Y.

June 21-25, American Society for Testing Materials: Annual meeting and exhibit of testing apparatus and related equipment, Book-Cadillac Hotel, Detroit. Society headquarters are at 1916 Race St., Philadelphia.

June 21-25, American Institute of Electrical Engineers: Summer general meeting, Mexico City, Mexico. Institute secretary is H. H. Henline, 33 W. 39th St., New York.

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By A. H. ALLEN *Detroit Editor, STEEL*

Mirrors of Motordom

Diversification of products helps General Motors hang up second highest quarterly sales in peacetime history. On annual basis, current earnings rate sets record

DETROIT

NET SALES of General Motors' products for the first quarter of the year crossed the $1 billion level for the second time in history, totaling $1,089,151,693, just a shade under the record fourth quarter of last year (the war-production year of 1944 is excepted). Thus GM continues to operate at a neat $4 billion per year clip. Net income on sales for the first three months of the current year exceeded $96 million and figured to 8.86 per cent on sales, well above the earnings rate of other automobile manufacturers. The answer is probably to be found in the high proportion of GM sales represented by locomotives, refrigerators, stoves and other nonautomotive products.

Earnings were the equivalent of $2.12 per share of common stock, after deducting dividends payable on two series of preferred stocks. Assuming the balance of the year shows as good a record, the corporation will earn better than $8 a share on its common, which tops anything the record shows going back to 1929 when the present $10 par value stock was issued. Last year's figure was $6.24 per share.

Total payrolls in the quarter were $370 million, compared with $270 million a year ago, and an average of 388,911 employees were on payrolls, compared with 375,305 last year. Car and truck production for the period was 547,017, or over 90,000 units better than the same period of 1947, although below 1940 when output was 572,295 and 1941 when it was 737,510.

Dividends Take Smaller Portion—Although earnings in bulk are high, the proportion channeled to dividends is far less than in prewar years. For example, in the ten-year period ended in 1941, dividends were 85.7 per cent of the net income available for dividends, while profits reinvested in the business were 14.3 per cent of income. During the four war years, dividends were 70.6 per cent of net income, while in 1946 they were 24.5 per cent greater than earnings because of restricted operations occasioned by strikes and materials shortages.

Meanwhile expenditures for new plant and equipment were continuing at a high level and costs for such outlays had far outdistanced earlier estimates. In 1946 it was necessary to raise additional working capital by selling $223 million of promissory notes and a new preferred stock. Since that time capital expenditures have continued, as has the rise in the general price level, resulting in an enforced reduction in the proportion of income going to dividends.

Automobile Production

Passenger Cars and Trucks—U. S. and Canada

	1948	1947
January	422,277	366,205
February	399,432	393,636
March	519,112	443,588
April	458,950*	445,137
May		404,191
June		421,466
July		400,944
August		364,478
September		444,501
October		461,536
November		417,493
December		492,109
12 mos.		5,055,284

* Preliminary.

Estimates for week ended:

	1948	1947
April 17	104,761	105,337
April 24	107,093	102,447
May 1	102,967	101,690
May 8	85,345	94,756
May 15	96,000	83,201

Estimates by Ward's Automotive Reports

In 1947, dividends were only 50.4 per cent of net income.

GM statisticians report sales in dollars for 1947 were 2⅓ times average sales for the pre-war years, 1937-1941, inventories and receivables as of the end of the last year were more than 2½ times the prewar average, and real estate, plants and equipment, less reserve for depreciation, were more than 1¾ times the earlier average. However, net capital employed in the business as of the end of 1947 was only 1½ times the prewar figure. Hence, despite the additional capital obtained from outside sources and the retention of an increased percentage of earnings in the business, GM was operating at the end of the year with relatively less net capital in comparison with its business volume than was the case before the war.

These are the factors which all business faces these days. They are not too easy to understand, especially by the man in the street or the man in the shop. He looks at the dollar figure for corporation profits, listens to government and union exhorters who tell only part of the story, and figures corporations are busy pouring a golden flood of profits into underground storage vaults, when actually they have less money to operate their businesses than was believed necessary ten years ago.

Truck Output Boosts Total—April assemblies of GM cars and trucks were off 19,000 from the March total, although they were 15,000 ahead of the same month a year ago. However, Buick, Oldsmobile and Pontiac built fewer cars than a year ago, the increase being accounted for principally by Chevrolet, where truck production soared to better than 37,000 units. The figures seem to attest the firmness of the truck market, especially in the lighter types. Chevrolet currently is featuring a comparatively new body style known as a carryall suburban, best described as a station wagon type of body mounted on a light truck chassis, but without the ornate exterior trim of the station wagon or its hefty price.

Rouge To Have Gases Plant

Claimed to be the first plant of its kind in the automotive industry, a new facility will be placed in operation July 1 at the Ford Rouge plant to supply 15 million cubic feet of oxygen and 54 million cubic feet of nitrogen a month, required in various operations at the Rouge. Oxygen is used principally for scarfing blooms, billets and slabs at the steel mill, as well as in oxyacetylene welding operations, cutting scrap and tapping open-hearth furnaces. It will also be furnished to the Henry Ford Hospital for oxytherapy requirements.

Studies are now current in ways to make use of about 50 million cubic feet of accumulated nitrogen a month. Nitrogen ordinarily is ejected to the atmosphere in oxygen-producing plants. Liquid nitrogen is em-

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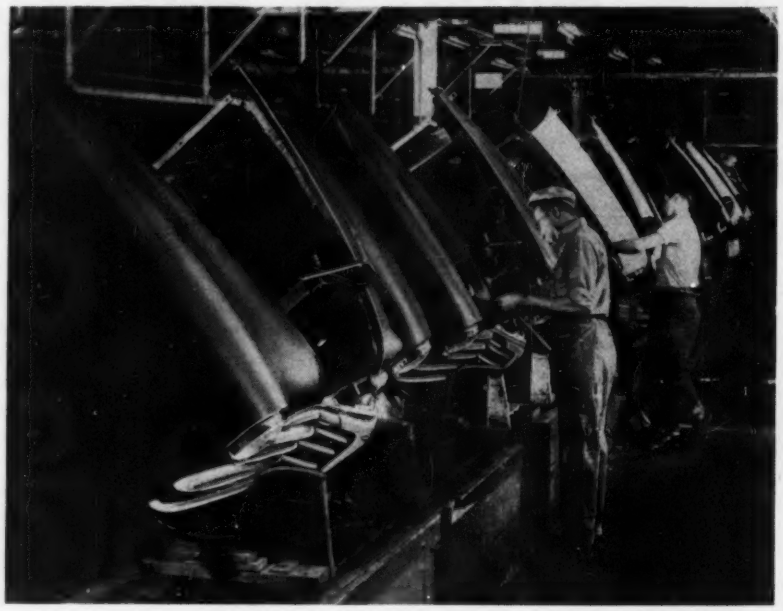


WIRED IN TRANSIT: Novel in automobile manufacturing practices is Chevrolet-Tarrytown's method of wiring front-end assemblies while the part travels on a moving conveyor toward the final car line. Generally all assembly and wiring operations are performed on stationary fixtures

ployed for shrink-fitting of valve seat inserts in cylinder blocks, and small quantities are needed for research laboratories, the tool and die plant, and in the Detroit Lincoln Division operations. Effluent nitrogen gas is suitable for controlled atmosphere heat-treating furnaces, the blanketing of inflammable liquid storage tanks and in spray painting of bodies.

The oxygen plant will be operated by Air Products Inc., originator of the process by which air is drawn through filters into compressors and, by suitable stage recompression and stage intercooling, is liquefied, the nitrogen and inert gas being boiled off at between 320 and 297 degrees below zero fahr., leaving pure liquid oxygen. The latter is regasified at 150 pounds pressure for delivery into the plant distribution system. To provide for peak loads, or surges, a storage tank of 500,000 cubic feet at 22-pound pressure will be available.

Since 1942, when the oxygen distribution system was placed in operation, it has been purchased in special tank cars and stored in a stand tank at a 297-degree sub-zero temperature and then vaporized into the system.

More '49 Fords Roll Out

Although production of the 1949 Ford model is now up to several thousand units per week, the official announcement date is better than three weeks away, June 9 to be exact. By that time it is estimated upwards of 12,000 cars will have been built and it is a pretty difficult job to keep that many new cars in hiding, so the actual formal unveiling of the new Ford may have its anticlimactic aspects.

Speaking at the dedication ceremonies for the new Lincoln-Mercury plant at Los Angeles on May 6, T. W. Skinner, general manager of the division, said Ford is now spending at a rate of $27 million annually on the Pacific Coast for materials and parts. The goal of $50 million annually is being aimed for in the belief that spending in the areas where customers are located is good business. Although Ford first built a plant in California in 1913, this is the first time that Lincoln-Mercury has had its own facilities there; in fact the new plant is the first exclusive Lincoln-Mercury plant to be dedicated anywhere. In peak production it will employ 1500 and will assemble 200 cars each 8-hour day.

The familiar spring and upset building at the Ford Rouge plant, a landmark for 24 years, has lost its identity and is now a part of the pressed steel unit, vacated space being devoted principally to shipping and receiving. Jobs formerly handled in Spring and Upset have been transferred away from the Rouge plant. All forging operations, for instance have gone to a new plant at Canton, O. An oil pan stamping job has been removed to another new plant on Mound Road in northeast Detroit which also has taken over passenger car spindle manufacturing.

Jeep Station Wagons for Army

Four-wheel drive jeep station wagons, first of this type to be manufactured, are now being built on special order for the Army by Willys-Overland, to be used on a survey project by the Army Map Service. Identical in appearance to the conventional jeep station wagon, except for olive drab paint, the main change is the replacement of the independent front suspension of the regular vehicle with a driving and steering type front axle and front propeller shaft. As now equipped the cars can climb a 57 per cent grade.

Playboy To Issue $1 Stock

Press reports indicate the Playboy Motor Corp. of Buffalo has filed an amendment to its stock registration statement with the SEC. It is disclosed that each of the three organizers of the company subscribed $50,000, for which they were issued 5 million shares of common stock at 1 cent a share. The company plans to sell 20 million additional shares to the public at $1 per share to finance subsequent operations. Already in excess of $640,000 has been raised through dealer and distributor franchises. Engine to be used in the projected bantam-weight car has been revised from a 40 to 48-horsepower type.

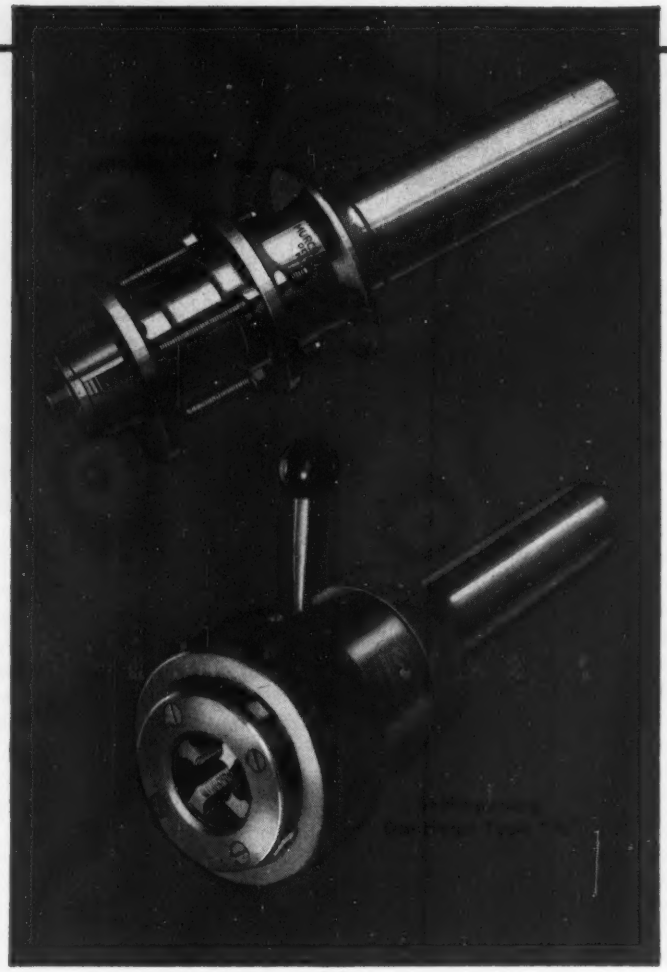
Timken Pushes Expansion

Timken Roller Bearing Co., Canton, O., has authorized capital expenditures totalling $1,836,870 in the first four months of 1948.

Largest single expenditure, $611,910, was for the St. Thomas, Ont., plant where a new carburizing and hardening department will be housed. The Canton Bearing Division, comprised of the Canton and Gambrinus bearing factories, was second in the period's authorization with a total of $396,445. Largest portion of this sum was for tool room equipment to set up special cup production. Almost $22,000 was allotted to the new plant at Colorado Springs, Colo., for a storage building and other items.

Expenditures for the Steel & Tube Division amounted to $786,040 for the Canton, Gambrinus and Wooster units. Bulk of this sum has been earmarked for a new 28-in. mill furnace and a new wire draw and header department.

A BETTER, MORE ECONOMICAL METHOD OF THREADING PIPE



The Murchey Pipe Tap

illustrated is a semi-receding, collapsible unit for cutting taper threads from 1¼" to 7" in diameter in cast iron or other materials of similar hardness. Larger sizes are available. For harder materials, the Murchey full receding tap is preferable. Either is used on standard automatic screw machines, drill presses, turret lathes, hand screw machines and special threading machines. These tools can also be arranged to cut straight threads. Both are available in the lever-operated or rotating type.

The Murchey Pipe Die

Types A and C are used for cutting taper pipe threads from ⅛" to 6". Larger sizes are also available. Type A is a stationary pull-off unit for use on machines where the tool is stationary. Type C is a yoke-operated tool for use on machines which rotate the tool. Excellent production records have been achieved by these tools on a wide range of pipe threading work.

2935

Consult a Murchey Engineer

MURCHEY MACHINE & TOOL CO.
Detroit 26, Mich.

Lowest cost per thread . . .

MURCHEY

SUBSIDIARY OF THE SHEFFIELD CORP.
DAYTON 1, OHIO, U.S.A.

Manufacturers of collapsible taps, self-opening die heads (tangent and radial chaser types) and special threading tools

Buying Big Job At Youngstown Sheet & Tube

TREMENDOUS effort that must be expanded by a steel company in buying its raw materials and maintenance items has been described by H. H. Waldschmidt, director of purchases, Youngstown Sheet & Tube Co., Youngstown.

Mr. Waldschmidt said purchasing is a full-time job for nearly 60 persons and the company has 15 principal buyers, each responsible for a number of items which his knowledge and experience make him most qualified to buy.

A study made during the war determined that the steel industry buys between 35,000 and 40,000 different items. Eight of these last year cost Youngstown Sheet & Tube $68 million, he said. They were: Zinc $3 million; brick $3 million; tin $5 million; coke $5.5 million; ferroalloys $7.25 million; fuel oil $11 million; coal $16.25 million; and scrap $17 million.

Approximately $60 million additional was spent for castings, machinery, spare parts, maintenance repair and operating items, construction and other items not included in the above mentioned groups.

Describes Magnitude of Needs—The company, Mr. Waldschmidt reported, last year "purchased approximately 14,000 carloads of fuel oil, approximately 30,000 carloads of limestone and limestone products, approximately 35,000 carloads of coal in addition to that produced at our own mines, approximately 10,000 carloads of coke in addition to that produced in our own ovens, approximately 12,000 carloads of scrap. These five items required 101,000 cars. We also purchased 23 million board feet of lumber, equivalent to 1500 average sized six-room homes; 19 million feet of copper wire — approximately 3500 miles; 24 million brick, equivalent to 1000 average sized six-room brick homes; 38 million pounds of high-priced oils and greases, enough to supply 186,000 automobiles for a year; one million feet of wire rope; 231 million kilowatthours of electricity, enough to supply 124,000 average sized homes or a city the size of New Orleans; 3½ billion gallons of water, enough for 600,000 families or for a city about the size of Philadelphia; 4¼ billion cubic feet of natural gas or enough for about 2000 homes."

35-TON SPIDER: This skeleton for a 250-ton rotor for a generator at Denison Dam on the Red river in Texas soon will help add more than 35 million watts to the dam's power output. Spider has just been machined at the East Pittsburgh Works of Westinghouse Electric Corp. NEA photo

Most important items persistently in short supply for a number of years have been scrap and coal—"for lack of which there has been lost to this country a tremendous production of not only steel but all other items dependent upon steel and coal."

Other shortages which have occurred in the last several years were in "copper, lead, zinc, fractional horsepower motors, cotton base insulating materials, castings, lumber, track material, chains, silica and ladle brick, diesel oil, kerosene, refractories of all kinds, soda ash and caustic soda in the solid, waterproof paper and bags, mechanical rubber goods of all kinds, textiles, sulphuric acid, leather goods and packing and belting."

Price Rises Cited—A comparison of prices of some of the items the company purchases was given by Mr. Waldschmidt, who pointed out that "fifteen years ago heavy melting scrap brought $8.25 a ton. In 1939 it was $17 to $18 and now we are glad to pay $40. Tin hit a low of 18 cents. By 1939 it was 50 cents and now 94 cents a pound. Lead reached a low of 2 2/3 cents a pound, rose to five cents in 1939 and 15 cents now. Copper was 4⅞ cents 15 years ago, 11 cents in 1939 and now 21⅝ cents. Zinc reached a low of 2⅓ cents a pound. In 1939 it was 4½ cents and now 12 cents. Pig iron was $14 fifteen years ago. In 1939 it was $22.50 and now $39. Low volatile coal reached a low of 65 cents a ton at the mines. In 1939 it ranged from $1.60 to $1.85 and now is $6.50. For the same coke we sold in the 'good old days' of 15 years ago for $3.25, we are now obliged to pay $15 and $16. Petroleum products have advanced 178 per cent since 1939; textiles are 144 per cent higher; lumber 113 per cent; brass and copper products 89 per cent; ferroalloys 71 per cent; castings 69 per cent; brick 54 per cent; electrical goods of all kinds 51 per cent.

"The present price of steel is approximately 40 per cent higher than in 1939," he added.

Fahye, Follansbee Deal Figure, Wins Acquittal

A. Terry Fahye whose reported efforts to gain control last winter of Follansbee Steel Corp., Pittsburgh, brought against him a New York State charge of violating a 1939 state supreme court injunction barring him from trading in stocks in that state has been acquitted of the charge.

Acquittal came in a 2-to-1 decision in a Court of Special Sessions, which upheld a defense motion that in an attempt to obtain control of Follansbee Mr. Fahye had not dealt in stocks but was in reality a merchandise broker seeking to obtain steel.

Assistant Attorney General John M. R. Rutenberg of New York State asserted the verdict was a "miscarriage of justice" and declared his office would appeal it to the Appellate Division of the New York State Supreme Court.

Briefs . . . .

Paragraph mentions of developments of interest and significance within the metalworking industry

Bedford Tool & Forge Co., Bedford, O., manufacturer of hand and pneumatic chisels, has appointed Tom Browne Inc., Pittsburgh, as its exclusive distributor in southwestern Pennsylvania.

—o—

National Research Corp., Cambridge, Mass., has granted an exclusive license to Smith Paper Inc., Lee, Mass., for production of metallized paper for use in electrical condensers. Under a newly developed technique, condenser paper can be coated with a zinc film.

—o—

Plasteel Products Co., Washington, Pa., producer of structural steel, has appointed Consolidated Steel Warehouse Co., Philadelphia, as its distributor in the Philadelphia area, and Levinson Steel Sales Co., Pittsburgh, as its agent in that area.

—o—

Bogue Electric Mfg. Co., Paterson, N. J., announces that its Belco Industrial Equipment Division Inc., producer of water conditioning equipment, has appointed Watermasters Inc., Houston, Tex., as its representative in the southwest.

—o—

National Council of Industrial Management Clubs, affiliated with the YMCA, is the new name for what was formerly the National Council of Foremen's Clubs. Executive secretary of the organization is William F. Meyer, 347 Madison Ave., New York.

—o—

Whiting Corp., Harvey, Ill., manufacturer of cranes, hoists and other materials handling equipment, has taken over Spencer & Morris Inc., Los Angeles, producer of a tramrail-type materials handling system. The California firm becomes the Spencer-Morris Division of Whiting.

—o—

Bendix Home Appliances Inc., South Bend, Ind., has formed Bendix Home Appliances, Canada, Ltd. The new subsidiary has contracted with Canadian Assemblies Ltd., Amherst, Nova Scotia, for fabrication and assembly of automatic washers. Annual output is expected to reach 30,000 units for Canadian and overseas markets.

—o—

Department of Commerce has established overseas export quotas of approximately 2.2 million tons of coal per month for shipment from Atlantic Coast ports, for each of the months of May, June and July.

—o—

Ampco Metal Inc., Milwaukee, manufacturer of castings, tools, welding equipment and other products, has appointed the following firms as distributors of its welding electrodes: Car Parts Depot Inc., El Paso, Tex., for western and southwestern Texas; Eagle Metals Co., Seattle, for western Washington; Gibson Welding Supplies, Spokane, Wash., for eastern Washington and northern Idaho.

—o—

Milford Rivet & Machine Co., Milford, Conn., has purchased Penn Rivet & Machine Co., Philadelphia, manufacturer of rivets and fasteners. Operations will be continued for the present at Penn's Philadelphia plant.

—o—

Illinois Coil Spring Co., Chicago, has purchased Milwaukee Spring Co., Milwaukee. J. Willard Marshall, former president and treasurer of Milwaukee, will continue to operate the company as vice president and general manager.

—o—

Redmond Co. Inc., Owosso, Mich., has reduced prices up to 16 per cent on practically all its alternating current induction types of fractional horsepower motors.

—o—

Standard Products Co., Cleveland, manufacturer of window channels and other products for the automotive industry, has moved its Detroit sales office to 316 Fisher Bldg.

—o—

Westinghouse Electric Corp., Pittsburgh, reports that its new orders booked during the first quarter of 1948 hit a new peacetime high of $242,355,168. The previous high was $226,848,611 in the third quarter of 1947.

—o—

Korhumel-Heffron & Preiss Steel Co., warehousing firm, has moved to 2424 Oakton St., Evanston, Ill.

—o—

Radio Manufacturers Association, Washington, reports production of television receivers in the first quarter of 1948 was nearly triple that for the corresponding period last year. Member companies turned out 118,027 sets during the quarter.

—o—

R-S Products Corp., Philadelphia, has appointed Energy Engineering Co., Chicago, as its representative for industrial furnaces in the Chicago area.

—o—

Bureau of Land Management, Department of the Interior, announces exploration and development of mineral deposits in more than 2½ million acres of public land in western Oregon is now permissible. New mining statutes passed by Congress last month withdraw this area from a forest conservation program.

—o—

J. Herbert Cox & Associates, Cleveland, manufacturers' representative in Ohio for six affiliate companies of Barium Steel Corp., has appointed Homer L. Ruh & Co., Columbus, O., as its sales representative for southern Ohio.

—o—

Mackintosh-Hemphill Co., Pittsburgh, manufacturer of rolling and steel mill equipment, recently honored 29 employees with service records of from 25 to 50 years.

—o—

Wagner Electric Corp., St. Louis, manufacturer of electrical and automotive products, has purchased a warehouse in St. Louis containing 215,000 sq ft of floor area.

—o—

General Electric Co., Schenectady, N. Y., is building a 3500 kw gas-turbine, scheduled to be delivered to Oklahoma Gas & Electric Co. at Oklahoma City some time in 1949. The unit is said to be the first gas turbine ever used by an electrical utility in the United States.

—o—

Monarch Machine Tool Co., Sidney, O., has established a fund of $30,000 from which over the next five years 15 scholarships of $2000 each will be awarded, three each year, to boys graduating from Shelby county schools with high scholastic records. Recipients may pursue a course in mechanical or electrical engineering at a leading college or university anywhere in the country.

—o—

Massey-Harris Farm Implement Co., Racine, Wis., has purchased Goble Disc Works, Fowler, Calif., for more than $400,000. Operations at the Fowler plant will be continued by the new owner who plans to manufacture other farm implements there, in addition to discs, for California distribution.

—o—

Chicago Association of Commerce & Industry reports that industrial developments in the Chicago area amounted to $6,848,000 in April, compared with $31,517,000 in April, 1947.

The Business Trend

EFFECTS of the coal strike, particularly loss of irreplaceable tonnages of steel and pig iron, were evident in STEEL's industrial production index for the week ended May 8. Despite the buoying influence of the five-point gain made in the national ingot rate, decline in car and truck production to lowest point since mid-February caused the index to hold steady at 160 per cent (preliminary) of the 1936-1939 weekly average. Labor disputes now cloud the production outlook in several important industries; last-minute cancellation of the threatened rail strike, however, removed the danger of a disastrous collapse of all industrial and commercial activity.

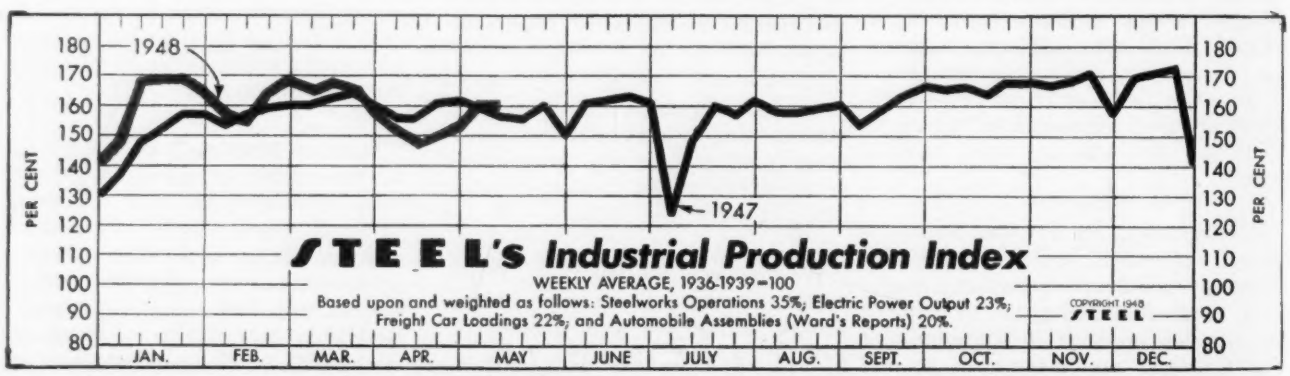
CAR LOADING—Bolstered by the second highest number of coal car loadings since February, 1930, freight car loadings in the week ended May 1 totaled 891,638. This was 1 per cent greater than in the corresponding week of last year and 33 per cent higher than the same week of 1946, Association of American Railroads reports. Coal loadings accounted for 204,191 of the total, the highest since the second week of December, 1946. Aggregate loadings this year to May 1 are 13,731,657, compared with 14,632,861 and 13,008,339 in the like periods of 1947 and 1946, respectively.

COAL—Production of bituminous coal and lignite rose in the week ended May 1 to 13,790,000 net tons. the highest since the week ended Jan. 10, according to the National Coal Association. Stocks at the end of March, as reported by the Bureau of Mines, totaled 43,585,000 net tons, 10.3 per cent less than at the beginning of the month.

ELECTRICITY—March production of energy by electric utilities was 23.5 billion kilowatt-hours, Federal Power Commission reports. This was the highest March production in history, and was only 2 per cent below the record output in January. Preliminary figures for last year indicate 255.7 billion kwh of energy were produced, exceeding by 12.1 per cent the previous peak established in 1944.

SALES—Manufacturers' sales in March, according to estimates by the Office of Business Economics, Department of Commerce, were $2.2 billion higher than in February, the latest month's total being $18.2 billion. Daily average value of sales by the durable goods industries was up 5 per cent, although nondurable sales dropped 2 per cent in average daily valuation. All durable goods, with the exception of nonferrous metals, participated in the gain. Retail sales in March were estimated at $10,475 million, 13 per cent above a year ago.

ENTERPRISE—New company incorporations in March were above February's total but fell below the corresponding 1947 month for the third successive period, Dun & Bradstreet Inc. reports. Charterings in March totaled 9346 and for the first quarter aggregated 28,219, 10.3 per cent below the like 1946 period. Business failures in March were also up, rising to 477 from 417 in February. This is the fourth consecutive month in which the number of failures has risen.



Index (chart above): Week ended May 8 (preliminary) 160 Previous Week 160 Month Ago 148 Year Ago 156

BAROMETERS of BUSINESS

INDUSTRY	Latest Period*	Prior Week	Month Ago	Year Ago
Steel Ingot Output (per cent of capacity)†	92.0	87.0	78.0	92.0
Electric Power Distributed (million kilowatt hours)	5,087	5,042	5,033	4,653
Bituminous Coal Production (daily av.—1000 tons)	2,298	1,895	348	2,086
Petroleum Production (daily av.—1000 bbl.)	5,413	5,413	5,377	5,005
Construction Volume (ENR—Unit $1,000,000)	$113.3	$183.2	$93.8	$95.2
Automobile and Truck Output (Ward's—number units)	85,345	102,967	103,004	93,369

* Dates on request. † 1948 weekly capacity is 1,802,476 net tons. 1947 weekly capacity was 1,749,928 net tons.

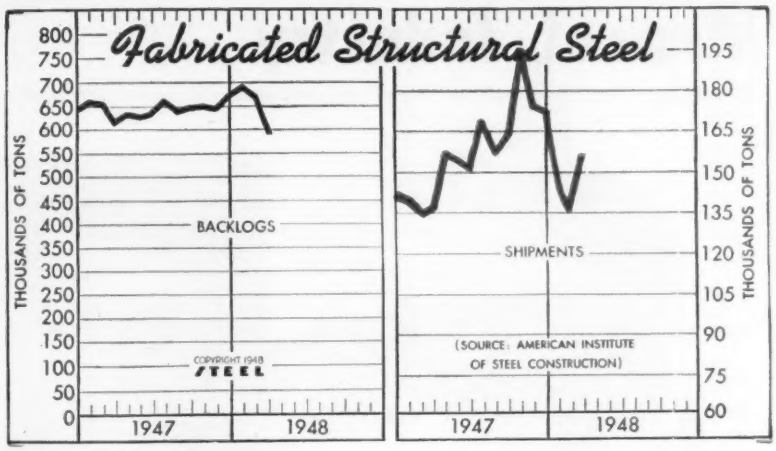
TRADE				
Freight Carloadings (unit—1000 cars)	900†	892	684	884
Business Failures (Dun & Bradstreet, number)	108	106	79	98
Money in Circulation (in millions of dollars)‡	$27,762	$27,682	$27,833	$28,197
Department Store Sales (change from like wk. a yr. ago.)‡	+8%	+11%	−12%	+12%

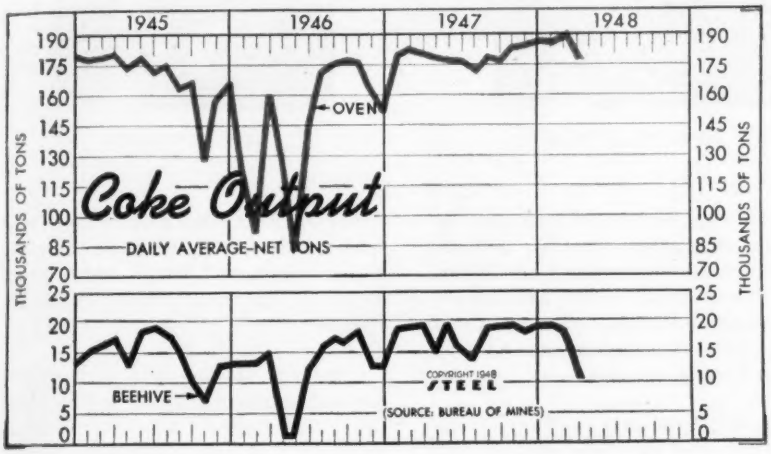
† Preliminary. ‡ Federal Reserve Board.

Fabricated Structural Steel

(000 Tons)

	Shipments			Backlogs		
	1948	1947	1946	1948	1947	1946
Jan.	145.2	140.6	107.5	692	661	552
Feb.	137.8	136.1	63.8	673	656	551
Mar.	158.1	137.8	102.8	597	614	605
Apr.	....	157.4	122.5	...	632	674
May	....	155.0	124.4	...	628	615
June	....	151.9	126.8	...	634	642
July	....	169.9	140.2	...	661	674
Aug.	....	158.0	157.5	...	639	651
Sept.	....	164.3	141.9	...	648	682
Oct.	....	196.1	164.7	...	649	660
Nov.	....	175.0	157.3	...	645	665
Dec.	....	173.0	142.1	...	671	646
Total	....	1,915.1	1,551.6			





Coke Output

Bureau of Mines

(Daily Average—Net Tons)

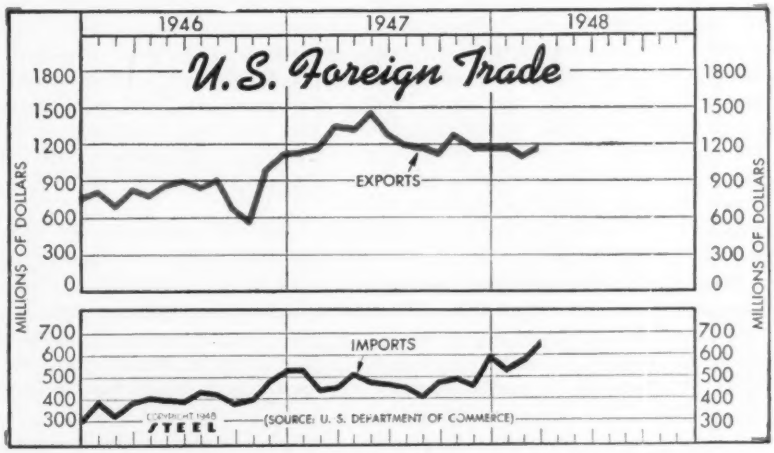
	Oven		Beehive	
	1948	1947	1948	1947
Jan.	189,191	181,245	19,554	18,124
Feb.	190,098	183,189	18,596	18,372
Mar.	182,340	182,529	10,338	18,725
Apr.	.....	179,428	.....	14,315
May	.....	178,398	.....	18,922
June	.....	177,416	.....	15,054
July	.....	173,312	.....	13,582
Aug.	.....	181,697	.....	18,346
Sept.	.....	179,872	.....	19,397
Oct.	.....	187,009	.....	19,786
Nov.	.....	188,342	.....	18,316
Dec.	.....	189,886	.....	19,454
Ave.	.....	181,860	.....	17,699

Foreign Trade

Bureau of Foreign and Domestic Commerce

(Unit Value—$1,000,000)

	Exports			Imports		
	1948	1947	1946	1948	1947	1946
Jan.	1,091	1,114	798	546	531	394
Feb.	1,086	1,146	670	582	437	318
Mar.	1,141	1,327	815	666	444	384
Apr.	....	1,299	757	...	512	406
May	....	1,421	851	...	474	393
June	....	1,242	878	...	463	382
July	....	1,162	826	...	450	431
Aug.	....	1,151	883	...	400	422
Sept.	....	1,109	643	...	481	377
Oct.	....	1,235	536	...	492	394
Nov.	....	1,138	986	...	455	478
Dec.	....	1,112	1,097	...	601	529
Total	....	14,456	9,740	...	5,740	4,909



FINANCE

	Latest Period*	Prior Week	Month Ago	Year Ago
Bank Clearings (Dun & Bradstreet—millions)	$13,505	$13,790	$13,719	$12,931
Federal Gross Debt (billions)	$252.1	$252.2	$252.4	$257.7
Bond Volume, NYSE (millions)	$22.2	$22.6	$25.0	$16.3
Stocks Sales, NYSE (thousands)	7,463	7,639	6,473	3,703
Loans and Investments (billions)†	$62.9	$63.5	$62.2	$63.4
United States Gov't. Obligations Held (millions)†	$35,475	$35,643	$34,433	$39,465

† Member banks, Federal Reserve System.

PRICES

STEEL's composite finished steel price average	$80.27	$81.14	$81.14	$69.82
All Commodities†	162.6	163.6	160.1	146.7
Industrial Raw Materials†	176.8	177.8	174.8	159.4
Manufactured Products†	157.9	158.9	154.9	142.2

† Bureau of Labor Statistics Index, 1926=100.

Men of Industry

W. F. SEWERT

JOHN W. CROSSETT

CURTIS A. GORDON

W. F. Sewert has been appointed manager of hardware products for the Wickwire Spencer Steel Division, Buffalo, N. Y., Colorado Fuel & Iron Corp. He has been associated with the company since 1923, and will continue to operate from the New York office.

—o—

Shure Brothers Inc., Chicago, announces the appointment of **William H. Attschuler** as vice president in charge of manufacturing. He became associated with the company in 1945 as factory manager, and since that time has supervised the manufacturing of the company's various lines of microphones, phonograph pickups, and other acoustic devices.

—o—

Howard M. Hubbard has been appointed president, Hydraulic Press Mfg. Co., Mt. Gilead, O., filling a vacancy created by the resignation of **H. A. Toulmin Jr.** last November. Mr. Hubbard has served as president of Elliott Co., Jeanette, Pa., and Greenfield Tap & Die Corp., Greenfield, Mass. He has served also in the capacities of controller, secretary and treasurer and company director of Harris-Seybold-Potter Co., Cleveland, as well as managing director of its Seybold and Canadian Divisions. For the past three years, Mr. Hubbard has been self-employed as a consulting and development engineer dealing with new products, manufacturing and export of heavy power equipment.

—o—

William M. Buttriss has been appointed to the position of director of advertising and sales promotion for Tinnerman Products Inc., Cleveland. He has served the company as director of market research and development, and has supervised all participation in trade shows and out-of-town sales promotion activities. Prior to his present appointment he was assistant sales manager.

—o—

John W. Crossett has joined the Development & Research Division, International Nickel Co. Inc., New York. He will follow railroad development work, and succeeds the late **Frederick P. Huston** in that capacity. Mr. Crossett has been chief metallurgist and assistant engineer of tests for Chicago, Milwaukee, St. Paul & Pacific Railroad.

—o—

Electric Products Co., Cleveland, manufacturer of battery-charging equipment, electrolytic equipment, synchronous motors, and other specialty equipment, announces the election of **R. W. Helmig** as a vice president and director. He joined the company in 1944, and previously had been connected with Delco Products Corp., Commercial Investment Co., and W. W. Sly Mfg. Co., and had owned Planefilm Corp.

—o—

Ralph D. Brizzolara and **James Suttie,** vice presidents of American Steel Foundries, Chicago, and **Joseph B. Lanterman**, comptroller of that company, have been elected directors of General Steel Castings Corp., Eddystone, Pa., succeeding **Thomas Drever,** president, and **Charles L. Heater** and **Charles C. Jarchow,** vice presidents of American Steel Foundries. **Charles E. Acker** and **John D. Tyson,** vice presidents of Baldwin Locomotive Works, Eddystone, Pa., have also been elected directors of General Steel Castings Corp., succeeding **Charles E. Brinley**, chairman of the board, and **Ralph Kelly,** president, Baldwin Locomotive Works, respectively.

—o—

Curtis A. Gordon has been named general works manager, Jessop Steel Co., Washington, Pa. Mr. Gordon formerly had been superintendent at the Colorado Fuel & Iron Corp., Wickwire Spencer Steel Division, Buffalo, N. Y., and has had varied experience in the steel industry, being associated with the following companies: Bethlehem Steel Co., Canton Alloy Co., Donner Steel Co., Rustless Iron & Steel Co., and Crucible Steel Co. of America.

—o—

Lawrence J. Kauffman, formerly scrap purchasing agent, Pittsburgh plant, Federated Metals Division, American Smelting & Refining Co., New York, has been promoted to assistant manager of operations at Houston, Tex. **Nathan J. Muskin** succeeds Mr. Kauffman at the Pittsburgh plant.

—o—

Charles S. Weber has been appointed advertising manager of Thew Shovel Co., Lorain, O. He formerly had been with White Advertising Co., Cleveland.

—o—

Crocker-Wheeler Electric Mfg. Co., division of Joshua Hendy Corp., announces appointment of **C. Porter Packard** as district manager of the Boston office territory. He has been with Westinghouse Electric Corp.'s general industry section of the industrial division.

—o—

A. L. McCarthy has been appointed

Where 3 times 3 Equals ONE!

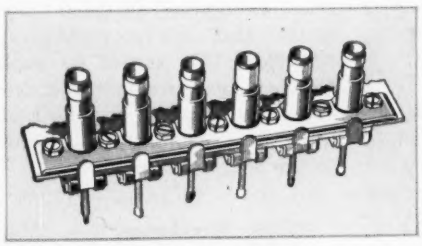
One part to install instead of nine!

You discover a new kind of "arithmetic" . . . and new savings in assembly costs when you use SPEED NUTS.*

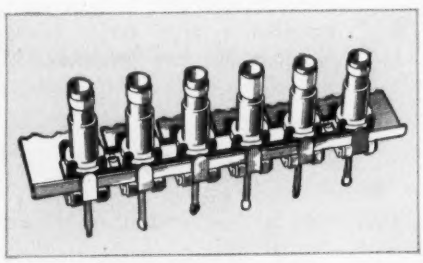
Here's a typical example of SPEED NUT "arithmetic": The specially-designed SPEED NUT fastener shown above, used in the assembly of radio coil forms, replaced nine separate parts. Also eliminated were extra punching operations and the driving of six screws.

The savings resulting from SPEED NUT applications like this can be enormous. Every one of the 4000 shapes and sizes of SPEED NUTS is designed to simplify, speed up, and improve assembly procedures.

Chances are these SPEED NUT advantages can be profitably used in the assembly of your product. Tinnerman engineers can provide the answer in a thorough fastening analysis. Send for details—and your copy of the latest bulletin on the SPEED NUT brand of fasteners. TINNERMAN PRODUCTS, INC., 2038 Fulton Road, Cleveland 13, Ohio.



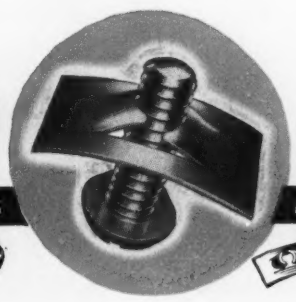
THE OLD WAY



THE *SPEED NUT* WAY

In Canada: Dominion Fasteners Limited, Hamilton
In England: Simmonds Aerocessories, Ltd., Treforest
In France: Aerocessoires Simmonds, S.A., Paris

TINNERMAN Speed Nuts ® Trade Mark Reg. U. S. Pat. Off.



FASTEST THING IN FASTENINGS — MORE THAN 4000 SHAPES AND SIZES

executive vice president of the Eureka Division, Eureka Williams Corp., Bloomington, Ill. He was first employed by the corporation in 1913 as a salesman, later becoming vice president in charge of sales and a director. He left the firm in 1939 to become associated with Bendix Home Appliances Inc., but was retained as a director of Eureka.

—o—

J. C. Farley has been appointed general manager, Radio Division, Sylvania Electric Products Inc., New York. He formerly had been controller of the Radio Division. His association with Sylvania Electric and predecessor companies began in 1922.

—o—

H. Chapman Rose and **Raymond M. Tierney** have been added to the board of Jack & Heintz Precision Industries Inc., Cleveland.

—o—

Martin J. O'Brien, assistant works manager, Symington Gould Corp., at Depew, N. Y., has been nominated for chairman of the Western New York Chapter, American Foundrymen's Association. He is unopposed and succeeds **Elliott R. Jones.**

—o—

General Electric Co., Schenectady, N. Y., announces the following appointments: **David B. Folkerth,** plastics sales office, has been named chemical department district representative at the Pittsburgh office. **Charles W. Bentley** has been appointed assistant to the manager of the new Decatur, Ill., plastics molding plant. He formerly had been manager of the compression molding plant of Pro-Phy-Lac-Tic Brush Co., Florence, Mass. **Frank E. Golliher** has been appointed production supervisor of the Plastics Division. He has been employed by General Electric since 1931, and recently was on the staff of the manufacturing manager of the Plastics Division.

—o—

Dr. D. P. Morgan has joined Mathieson Chemical Corp., New York, formerly the Mathieson Alkali Works, as administrator of research and development.

—o—

R. W. Mueller has been appointed manager of sales, Stainless Steel Division, Tennessee Coal, Iron & Railroad Co., Birmingham. **C. M. McKenna** has been named manager of sales training and procedure.

—o—

Paul J. Bowron, formerly assistant manager, industrial relations, Tennessee Coal, Iron & Railroad Co., Birmingham, has been appointed superintendent, Fairfield sheet mill. He succeeds **Reginald E. Sturdy,** who has been made staff assistant in the office of the general superintendent of the Fairfield sheet and tin mills. **Elmer F. Harris** has been promoted from assistant to the general superintendent to assistant general superintendent of the sheet and tin mills.

—o—

Waite Stephenson and **Carl Kalbfleisch** have been promoted to vice presidents, Atlas Imperial Diesel Engine Co., Oakland, Calif.

—o—

Lincoln Electric Co., Cleveland, announces the addition of **W. R. Persons,** general sales manager, and **K. F. Steingass,** superintendent, electrode manufacture, to its board of directors.

—o—

H. S. Hagan has been appointed acting manager of the Butler, Pa., plant, Pullman-Standard Car Mfg. Co., Chicago, succeeding **R. M. Fox,** manager of works, who has been granted a leave of absence.

—o—

Matthew L. Snodgrass, formerly manager, Furnace Division, Gas Machinery Co., Cleveland, has been elected vice president. He will continue to direct the activities of the Furnace Division.

—o—

Perfection Stove Co., Cleveland, announces the appointment of **A. B. MacLaren** as assistant sales manager of the Furnace Division.

—o—

Lester H. Bittner has been elected to the newly created position of vice president in charge of purchases, Allegheny Ludlum Steel Corp.

—o—

Ohio Ferro-Alloys Corp., Canton, O., announces that **R. L. Cunningham** has been elected president, **W. W. Fritz,** executive vice president, **J. C. Vignos,** vice president of sales, and **W. O. Wetherell,** secretary and treasurer of the corporation.

—o—

Peter S. Richards has been appointed manager of the new warehouse opened by A. B. Murray Co., at Versailles, McKeesport, Pa.

—o—

Carl E. Brook Jr. has been appointed branch manager, St. Louis office, Ilg Electric Ventilating Co. He succeeds **H. L. Branigin,** who has retired after serving the company for over 25 years.

—o—

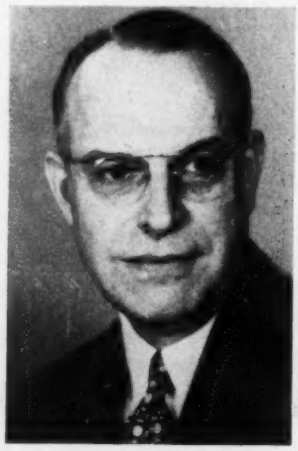
C. F. Larsen has been appointed manager of general service, and **C. A. Slifer** as assistant, Mack Trucks Inc., New York. Both men will make their headquarters at the company's Plainfield, N. J., plant. **George McCall** has been appointed manager of service engineering, with offices at the Long Island City, N. Y., plant.

—o—

Jones & Laughlin Steel Corp., Pittsburgh, announces the following changes in management: **Hampson Carey,** assistant treasurer, has been promoted to treasurer of the corporation; **W. C. Plummer,** employed as an attorney since 1920, has been appointed general counsel; **J. T. Ross,** a member of the legal department, has been appointed assistant general counsel. Also announced is the retirement of **W. J. Creighton,** who has been associated with the corporation nearly 48 years. He served as controller, director, vice president and executive vice president, and for the past year has been consultant to the chairman of the board of directors.

—o—

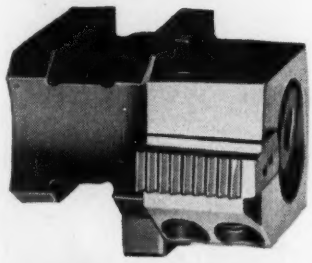
H. H. Bunchman, assistant treasurer, Crane Co., Chicago, has been elected treasurer, to succeed **Walter Evensen,** retired. **David Levinger,** a director and vice president, Western



LESTER H. BITTNER

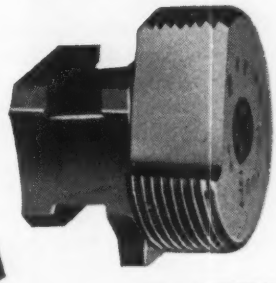
W. J. CREIGHTON

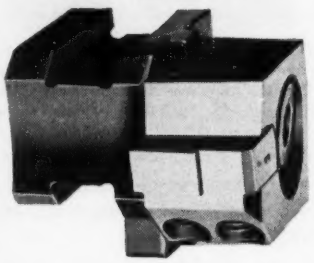
NOW-ADJUSTABLE BLADE CHASERS

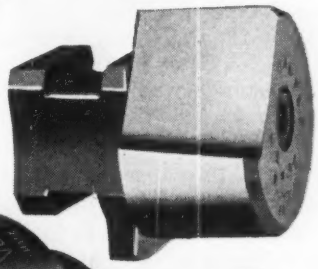


Adjustable Blade Milled Chasers or Hollow Mill Cutters —for your medium and short run jobs.

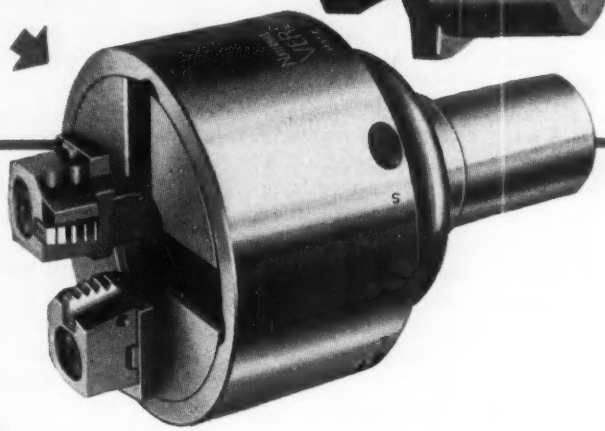
Circular Ground Thread Chasers or Hollow Mill Cutters —for your long run jobs.







Standard Vers-O-Tool Head—available in Styles DS (Stationary), DR (Revolving), and DBS (For Brown & Sharpe machines)—equally adaptable for Circular or Adjustable Blade Cutters.



...for use in your standard Circular Chaser

VERS-O-TOOLS

Make your Vers-O-Tools more versatile than ever! Use the standard circular-type ground-thread chasers for high-speed, highly accurate production on long run jobs. Then, *with the same Vers-O-Tool head*, you can get this fast, close tolerance work on medium and short run jobs—using the new, more economical adjustable blade milled chasers.

They're equally adaptable to all three styles of Vers-O-Tools within the popular range of cutting sizes from $\frac{3}{8}$" to $1\frac{5}{8}$".

These new adjustable blade chasers are positioned to the specified cutting size by positive, quick diametric adjustment of the Vers-O-Tool, just as when it is equipped with circular chasers—and the same double-barrel micrometer gage is used to provide an accurate check before and after grinding.

* * *

An exclusive design feature is the provision for take-up of block after each grind; the chasers are always up to proper cutting position regardless of the number of grinds or the requirements for different materials cut.

* * *

Vers-O-Tools are preferred for their simplicity of construction—and for their versatility. They are your best bet for fast, economical work on all production jobs in your shop. Ask for detailed literature and prices.

The NATIONAL ACME CO.

170 EAST 131st STREET • CLEVELAND 8, OHIO

Acme-Gridley Bar and Chucking Automatics: 1-4-6 and 8 Spindle • Hydraulic Thread Rolling Machines • Automatic Threading Dies and Taps • The Chronolog-Limit, Motor Starter and Control Station Switches • Solenoids Centrifuges • Contract Manufacturing

Electric Co., has been elected a director of Crane Co., to fill a vacancy on the board created by the death of **Dr. Frank R. Lillie.**

—o—

Dr. Churchill Eisenhart, chief of the statistical engineering laboratory, National Bureau of Standards, has been elected a fellow of the Royal Statistical Society of Great Britain.

—o—

G. L. Thomas has been elected manager of the United States Steel Corp. and Carnegie pension fund to succeed **H. A. Schultz,** retired after 41 years of service with U. S. Steel Corp. Mr. Thomas joined the staff of the pension fund in 1944 as assistant treasurer of the contributory pension plan.

—o—

Fred L. Haven, a member of the manager's staff, American Steel & Wire Co., Cleveland, U. S. Steel Corp. subsidiary, has retired on pension after 46 years' service.

—o—

R. G. Altizer, advertising manager, Sperry Products Inc., Hoboken, N. J., has joined Fred Wittner Advertising, New York, as an account executive.

—o—

E. S. Dulin, president, Byron Jackson Co., Los Angeles, has been elected a member of the board of directors, Lockheed Aircraft Corp.

—o—

Harold P. Wolf, management engineer consultant, has been named assistant manager of the commercial research department, Rheem Mfg. Co., San Francisco.

—o—

C. T. Spivey has been appointed director of industrial relations for Columbia Steel Co., U. S. Steel Corp. subsidiary, succeeding **Joseph L. Turner,** who has been named to an executive position with U. S. Steel Corp. in Pittsburgh.

—o—

George R. Bastedo has been appointed to the staff of the National Bureau of Standards, where he will work as electronics engineer for the guided missile section. He was formerly a project engineer for the Research & Development Division, Bureau of Ordnance, Navy Department, Washington.

—o—

Officers elected for the 1948-1949 year for the Concrete Reinforcing Steel Institute are: **H. E. Calves,** president; **E. B. Wilkinson,** vice president; **W. H. Stewart,** vice president; **J. R. Fenstermaker,** treasurer; **H. C. Delzell,** secretary. Newly elected members of the board of directors are: **F. H. Davidson; J. R. Fenstermaker; S. V. Taylor;** and **F. F. Trierweiler.**

—o—

Irwin H. Cornell has retired as vice president and sales manager, St. Joseph Lead Co., New York. He will remain as a member of the board of trustees and of the executive committee of the company.

—o—

Carl H. Krause has been appointed works manager of the newly established New York Works, Trumbull Electric Mfg. Co. Inc., Plainville, Conn. He formerly had been supervising engineer at the Kearny, N. J., plant of the Western Electric Co.

—o—

Beldon S. Tucker has been appointed district sales manager for the Chicago office, recently opened by Economy Pumps Inc., Hamilton, O. **Bruce Hetler** has been made distributor for the company in western Michigan. He will make his headquarters in Grand Rapids, Mich.

—o—

Charles Hallman, specialist in the engineering and construction of industrial buildings, has joined Crump Inc., Pittsburgh, as head of its industrial department. He formerly had been associated with H. K. Ferguson Co., New York.

—o—

Dr. Henry W. Newson, nuclear physicist, who has played a major role in the development of atomic energy, has been retained as a full-time consultant on nuclear reactor design by H. K. Ferguson Co., New York.

—o—

Russell M. Braund has been appointed comptroller of American Steel & Wire Co., Cleveland subsidiary of United States Steel Corp., succeeding the late **M. W. Field. John W. Jordan** has been named assistant comptroller, with added responsibilities.

—o—

Robert W. Straughn has been appointed merchandising manager, Hudson Motor Car Co., Detroit.

—o—

Fred Mosher, research engineer, Standard Stoker Co. Inc., at Erie, Pa., has been named assistant to the vice president.

—o—

D. Lyle Fife, president, Fife Electric Supply Co., Detroit, has been elected to the board of E. W. Bliss Co., Detroit.

—o—

American Car & Foundry Co., New York, announces retirement of **James L. Mahon,** district manager of its Detroit plant. He has been associated with the company for more than 40 years, having entered its employ in 1898.

J. C. DUKE

Has been elected vice president in charge of 3M Coated Abrasives Division, Minnesota Mining & Mfg. Co., St. Paul. Noted in STEEL, May 10 issue, p. 87

—o—

Louis W. Hesse has been appointed director of community relations for Keystone Steel & Wire Co., Peoria, Ill.

—o—

Edgar A. Jett II has been named assistant director of Armour Research Foundation, Illinois Institute of Technology, Chicago. He joined the foundation staff in 1947 as director of sponsor relations, and previously had been with General Electric Co. as director of sales for the six-state, Great Lakes, district, with headquarters in Cleveland.

—o—

Harry E. Thiele has been elected vice president of manufacturing, General Steel Castings Corp., Eddystone, Pa., to succeed **A. R. Allard,** resigned.

—o—

Malcolm W. Welty has been appointed staff assistant of the industrial relations department, Ford Motor Co., Dearborn, Mich. For the past five years he has been assistant manager of Automotive & Aviation Parts Manufacturers Inc. **William R. Loughran** has been named director of supply for the International Division of Ford Motor Co. He will be assisted by **H. E. Jones,** until recently associated with Chrysler Corp.

—o—

Grasselli Chemicals Department, E. I. du Pont de Nemours & Co. Inc., Wilmington, Del., announces the appointment of **Howard J. Smith** as assistant manager of its resale chemicals section in Wilmington, and of **Henry F. Koll** as manager of its district office at Charlotte, N. C. Mr. Smith was associated with the Gras-

W. H. ROWAND
Named chief engineer, Babcock & Wilcox Co., New York. Noted in STEEL, April 26 issue, p. 96

ALLEN W. LOVELL
Elected vice president, Modern Collet & Machine Co., Ecorse, Mich. Noted in STEEL, May 10 issue, p. 86

CHARLES H. LONGFIELD
Elected vice president, Youngstown Sheet & Tube Co., Youngstown. Noted in STEEL, May 3 issue, p. 86

selli department for a period of years as branch manager and assistant district manager at Philadelphia before going to Charlotte as district manager in 1937. Mr. Koll joined Grasselli department at its Cleveland laboratory in 1932. For the past three years he has worked out of the Philadelphia sales office.

—o—

R. J. Kilmer has been appointed controller of Morton-Gregory Corp., Toledo, O. His headquarters will continue to be in Lorain, O., where, since 1946, he has been assistant general sales manager, Nelson Stud Welding organization, whose manufacturing assets and patents have been acquired by Morton-Gregory, and is now known as the Nelson Stud Welding Division of Morton-Gregory Corp. **R. C. Friedly,** construction industry specialist, has been appointed assistant general sales manager of the new set-up. **Fred J. Meyer,** previously manager of Nelson's Railroad Division, has been named assistant to the general sales manager.

—o—

Titan Metal Mfg. Co., Bellefonte, Pa., announces that it has opened a new mill depot in Indianapolis, with **Samuel D. Rhinesmith** in charge. Mr. Rhinesmith has had 15 years of experience with brass mill products.

—o—

C. J. Leroux has resigned as a director and vice president-sales, Freedom-Valvoline Oil Co., Freedom, Pa. He is succeeded in his positions by **Harry I. Johnston,** formerly manager of sales under Mr. Leroux. **Harold J. Dunmire,** previously manager of the Butler, Pa., plant, has been named manager of sales as assistant to Mr. Johnston.

—o—

Adalet Mfg. Co., Cleveland, has appointed **Lewis P. Chick** of Louisville, Ky., as factory representative in Indiana. He will handle Adalet conduit fittings in the entire state except five counties adjacent to Chicago. Since returning from service in the Army, Mr. Chick has been Chicago district sales manager for Electric Corp. of America.

OBITUARIES...

Peter D. White, 59, president, Babcock & Wilcox Tube Co., died suddenly May 6 while en route by automobile from the company's plant at Beaver Falls, Pa., to the Alliance, O. plant. He had been associated with the organization 33 years. He was elected president in April, and during the past year had been executive vice president and a director, and was previously vice president for five years.

—o—

John S. Coulton, 68, vice president and a director, W. S. Tyler Co., Cleveland, died recently. He was elected a vice president in 1929, and previously had been manager of the Ornamental Iron & Bronze Division of the company.

—o—

Charles J. Brown, 65, retired superintendent of the Rankin, Pa., works of American Steel & Wire Co., a U. S. Steel Corp. subsidiary, died recently. He had been associated with the company for 38 years prior to his retirement last March.

—o—

William G. Humpton, 67, retired, for many years chief metallurgical engineer, Lukens Steel Co., died May 5 in the Coatesville, Pa., Hospital of a cerebral hemorrhage.

—o—

Carl Van Laaten, 57, midwest sales manager, Wyandotte Chemicals Corp., Chicago, died May 8 in that city.

—o—

Maxton R. Davies, vice president and treasurer of the advertising agency, Foster & Davies Inc., Cleveland, died May 6.

—o—

Rudolph R. Ostermann, 71, a research engineer for Superheater Co., Chicago, died recently. He had retired from the company two years ago.

—o—

Wentworth Middleton, 60, retired assistant to the general manager, A. M. Byers Co., steel concern of Ambridge, Pa., died May 9 at his home in East Orange, N. J.

—o—

William I. Keller, superintendent, Lees-Bradner Co., machine tool makers in Cleveland, died recently.

—o—

Stanley T. Campbell, 59, former president, Aetna Rubber Co., Cleveland, from which he retired some years ago to become associated with Apex Electrical Mfg. Co., Cleveland, died recently of a heart attack.

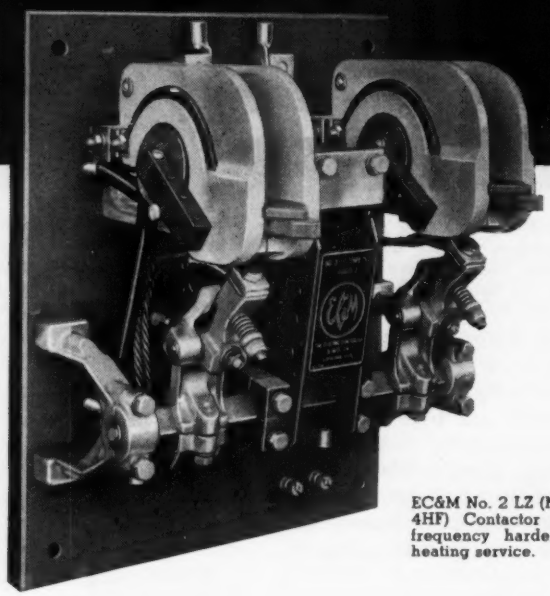
—o—

Frederick V. Cole, 57, former secretary, Penton Publishing Co., Cleveland, and since 1936 editor of *The Jewelers' Circular-Keystone*, died May 9.

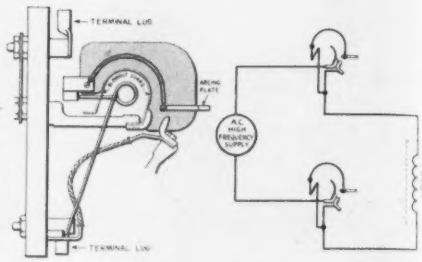
—o—

William Russell, 62, a chemist and metallurgist, who pioneered carbide wire drawing in his 37 years with General Electric Co. in the Wire Division laboratories, died recently at his home in Cleveland Heights, O., of a heart attack.

AND NOW...A New Line of High Frequency Contactors



EC&M No. 2 LZ (NEMA No. 4HF) Contactor for high-frequency hardening and heating service.



Sectional view of Contactor and line diagram showing EC&M method of automatically inserting the blowout in the circuit as the contactor starts to open.

DEVELOPED specifically for closing and opening the high frequency power circuits in heat treating and hardening applications—on frequencies up to 10,000 cycles per second.

Known as the Type LZ of *LINE-ARC* Design, these EC&M contactors are of double-pole construction, using one pole to open each side of the line. Their blow-out coils are not subject to excessive heating from eddy currents, but are introduced in the circuit at the time the contactor starts to open to interrupt the flow of current.

One end of the blow-out coil is connected to the arcing-plate, located at the front of arc shields, and the other end is connected in the conventional manner. At the instant the contacts start to separate, the arc is transferred in about 1/500th second to the circular guard over the blow-out coil, and to the arcing-plate. The blow-out coil is thus automatically inserted and the arc is extinguished quickly under control of the *LINE-ARC* principle which allows the ends of the arc to travel in opposite directions.

Ask for Bulletin 1215 which gives sizes, ratings, and dimensions of these outstanding new contactors. If you have a specific problem please advise (1) frequency (2) control voltage and (3) ampere capacity so that we can write you fully.

STANDARD FEATURES

1 Two-pole Contactor with blow-out coil introduced in the circuit automatically as the contactor starts to open. Prevents destructive eddy-current heating when contactor is closed.

2 Arc quickly transferred to arcing-plate and blow-out guard as circuit is opened. Contacts operate cool, and have long life in this service.

3 *LINE-ARC* design confines the arc to a line centered between the arc shields, eliminating destructive burning on these barriers.

4 Current-carrying shunts of special flexible cable of individually tinned strands of wire. Of proper length and shape so that the magnetic field, surrounding each shunt when carrying current, directs the arc upward as the contacts start to separate.

5 Contacts are pure copper, cold-formed by a special process producing high wear-resisting qualities.

6 Properly balanced design eliminates bounce when contactor closes or opens.

7 Oilite, self-lubricating bearings throughout (for both main and auxiliary arm bearings).

8 Continuous capacity operating coils for standard voltages and frequencies are capable of frequent operation in hardening service and are well suited for heating applications where the contactor may be closed for a longer period of time.

9 Open style with terminal lugs for front-connection or for back-connection.

OPTIONAL FEATURES

10 NEMA Type I (ventilated) Enclosure.

11 Composition base furnished in place of slate base, without price change when specified on order.

THE ELECTRIC CONTROLLER & MFG. CO.
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Engineering News . . . AT A GLANCE

TOUGH "THREAD"—Special combination of heat treatments and exceptionally long and exacting cold working are enabling the Worcester, Mass. plant of American Steel & Wire Co. to produce a supertensile high carbon wire that possesses more than twice the tensile strength, in pounds per square inch of cross sectional area, of the steel wires used for the cables to suspend the 8¼-mile Oakland-San Francisco bridge. The 0.010 wire provides a tensile strength of about 460,000 pounds per square inch. One pound of it extends 3749 feet.

ELECTRO-EROSION CUTTING—Russian engineers are experimenting with a relatively radical metal cutting process, best described as electro-erosion, for cutting hard metals, it is learned. Equipment used is said to resemble a metal disk saw, disk being connected to the negative terminal and the workpiece held in a vise connected to the positive pole of a direct-current circuit. In the presence of an electrolyte, used like a cutting fluid, an electric discharge is produced when the disk contacts the work under slight pressures. Cutting speeds on unhardened tool steel are comparable to those of conventional sawing rates. Small sections of hardened high speed steel and cemented carbide are cut in ¾ and 1¼ minutes respectively.

BUFFER FOR "EMERYVILLE"—Any cylindrical object from a tiny fountain pen to an 8-quart size cooking utensil can be polished at high speed by a semiautomatic rotary buffer recently designed by Square Deal Machine Co., South Gate, Calif., for Western Die Casting Co. of Emeryville. Production varies from 120 to 2000 pieces per hour, depending on size of work to be polished. The unit employs six spring loaded flexible buffing heads equipped with hydraulic stabilizers, processing the work in three operations. Each of the heads is separately controlled and driven by an individual General Electric Tri-Clad motor. Continuous adjustment of heads for wheel wear, and uniform pressure against the work is ensured by the angle spring located floating heads.

STEEL IN FIFTY VARIETIES—Today's automobile weighing 3300 pounds contains about 2500 pounds of steel. This may include, according to *Automobile Facts,* 20 kinds of carbon steel and ten kinds of free-cutting carbon steel that are high in phosphorous or sulphur content. In addition, the car may have 25 or more alloy steels—manganese, vanadium, chromium, nickel, molybdenum, tungsten or other metals. The typical 1948 vehicle weighs 150 pounds more than its 1941 model; 500 pounds more than its 1937 predecessor and twice as much as in 1918.

POTENTIAL FABRICATING "AMMUNITION"—Two new light metals—titanium and zirconium—now produced in limited quantities by the Bureau of Mines, show great promise for use in aviation, it is reported. The former, half as heavy and twice as strong as unalloyed low-carbon steel, is less than twice the weight of aluminum, and twice as strong per cross section. Zirconium, about three times the weight of aluminum but lighter than steel, is expected to compete with stainless steel, tantalum and stellite, particularly in turbine blades. Production costs of the new metals—$4 per pound for titanium and slightly more for zirconium—are still way beyond commercial reach. The bureau at present is doling out samples of titanium to industry and the Navy under cooperative research agreements.

"STRATEGIC" PROCESSING — To process massive components of huge surface condensers in the plant of Allis-Chalmers, facilities are arranged strategically so "tailor-made" parts may be fabricated with utmost efficiency. Production equipment used ranges from the smallest screw machines to a 40-foot boring mill, with handling equipment capable of moving parts and weighing thousands of pounds between heavy capacity forming, rolling and stamping operations. (p. 72)

CORROSION MISUNDERSTOOD — Many organic coatings fail to provide satisfactory protection against corrosion simply because all factors that accelerate corrosion, or which make it possible to coat a surface efficiently are not understood. Considering the investment the fabricator of metal products has in the actual cost of protective coating materials, together with the fact that labor cost of application is usually several times the raw materials cost, it becomes evident that proper selection and evaluation of protective coatings assume roles of great importance to the economy of many metalworking plants. (p.77)

TEN-SECOND "KNITTING" — Hot-rolled strip steel is heated to a molten state then forged together with an upsetting impact up to 12,000 pounds per square inch by a welding unit incorporated in J & L Steel Corp.'s new continuous pickle line. In a matter of 10 seconds the coil ends are joined by a uniform and homogeneous weld necessary to permit the weld to be cold reduced along with the rest of the strip. Electronic controls are used to govern action of the welder. (p.84)

FAST SKULL RECOVERY — In reclaiming ladle skulls and buttons in a plant in the Great Lakes district, large skulls varying 4 to 6 feet thick are first pierced to about the center with a conventional oxygen lance, then split in half by blasting. Method eliminates piercing thicknesses beyond the range of the blowpipe and, in addition, limestone and slag are removed which otherwise would be difficult to cut. Skulls are cut at a speed of about 2 to 6 inches per minute. Approximately 300,000 cubic feet of oxygen are used each month for this purpose. (p.94)

NEWSENG ENGINEER

Building Surface Condensers

...how strategic use of metalworking equipment facilitates processing of massive components

Tools, welding fixtures, fabricating methods used by Allis-Chalmers to machine and assemble vital components of steam power plants, run the gamut of metalworking techniques and furnish overwhelming proof that a condenser is more than just a shell and tubes and castings

VERSATILE production facilities from the smallest screw machines to a 40-foot boring mill, a 1250-foot erection floor serviced by cranes capable of moving parts weighing thousands of pounds, heavy capacity forming, rolling, stamping presses, are employed by Allis-Chalmers Mfg. Co. in the manufacture of steam surface condensers. These vital units for power plants are among the major products built at the company's huge West Allis, Wis. plant.

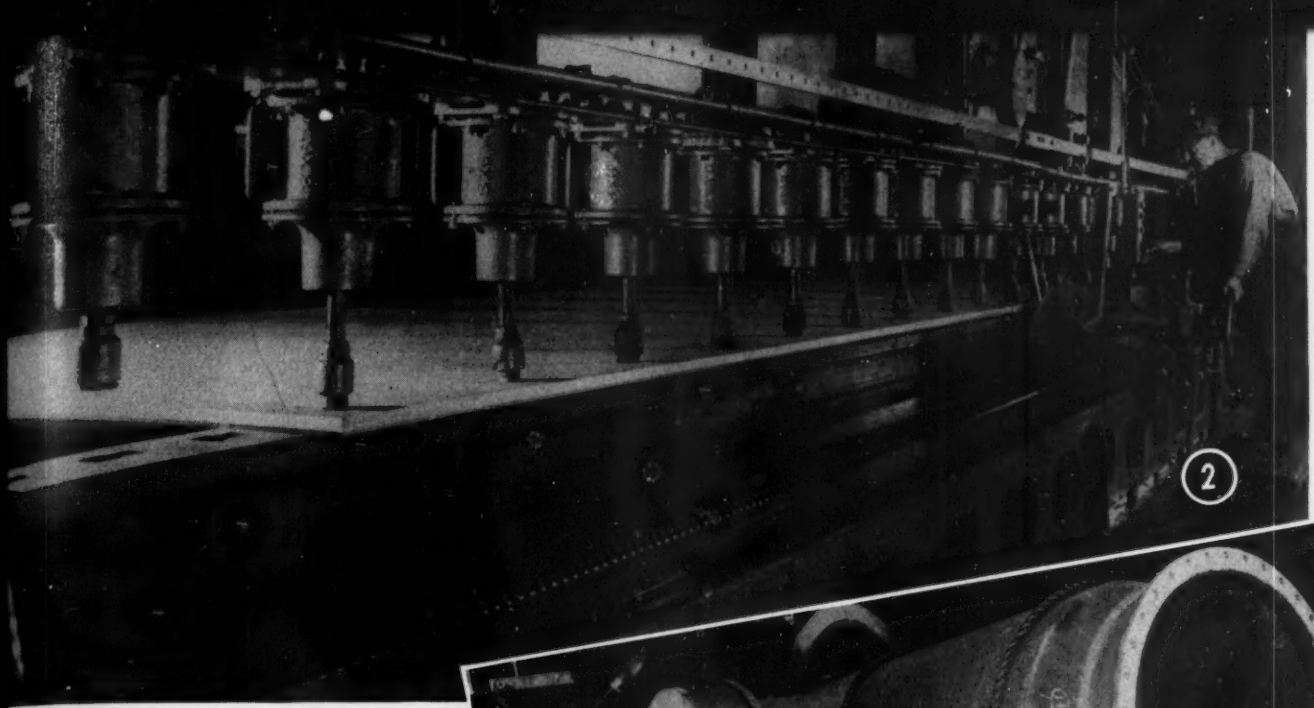
Condensers are used to reduce back pressure on engines or turbines, and to change steam vapor back to its original state, so that it can be recovered and returned to the boiler for further use. To perform its job, a condenser, in spite of its size, must be built to extremely accurate tolerances.

Physically, the condenser shell is rolled from steel plate, welded and reinforced and braced for strength and stiffness. Welding, for instance, must be perfectly done to give a bottle-tight vessel and to prevent air leakage into the vacuum system.

Water boxes are generally cast iron, of proper thickness and uniformity, and accurately machined. They must pass rigid hydrostatic tests to prove that leakage of cooling water cannot occur in spite of the necessarily high pressures of service. Tube sheets must be accurately drilled to allow a perfectly tight joint with the tubes to prevent inleakage of raw water into the vacuum space.

Weights of steam and cooling water are enormous, and the design of the unit must take this into account so that no leakage of water or steam can ever cut the efficiency of the unit. Tube sheets and steady plates must be parallel with each other, the tube holes correctly spaced so that the proper distribution of cooling surface is obtained. Again they must be braced to prevent vibration from the impact of high velocity steam leaving the turbine exhaust.

Since the major function of a condenser is to condense exhaust of the prime mover under given conditions with the minimum expenditure of energy and least loss of heat, design is of great importance. The shell must be so proportioned that it will fit the physical area allowed in the power house structure. Arrangement of tubes and baffles and tube sheets must be so determined that there are no dead spots



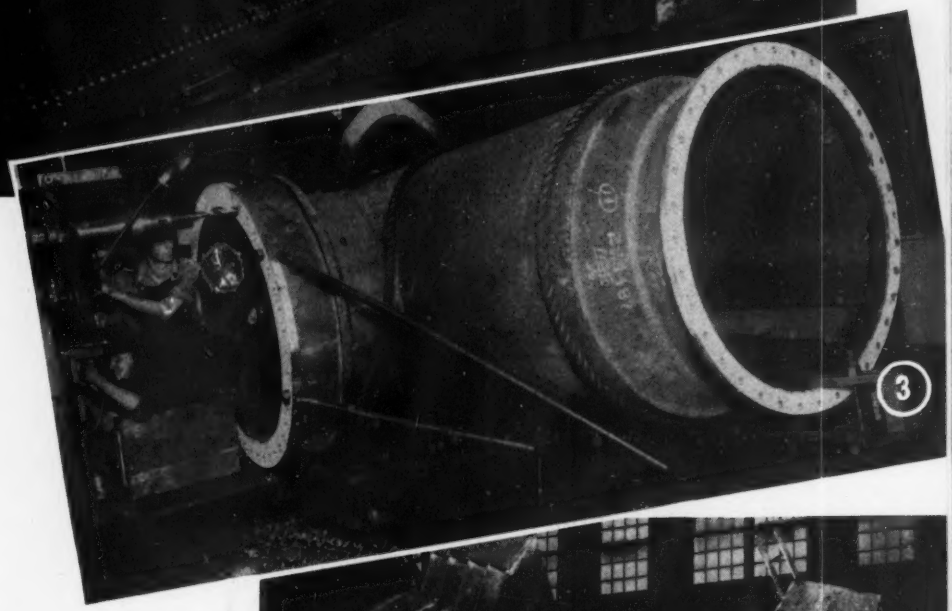


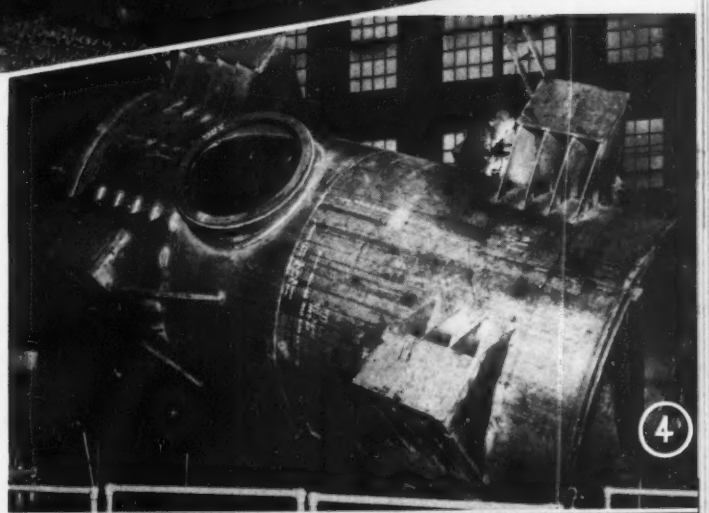
Fig. 1 — Rolling steel plate for 8000-square-foot welded steel surface condenser shell

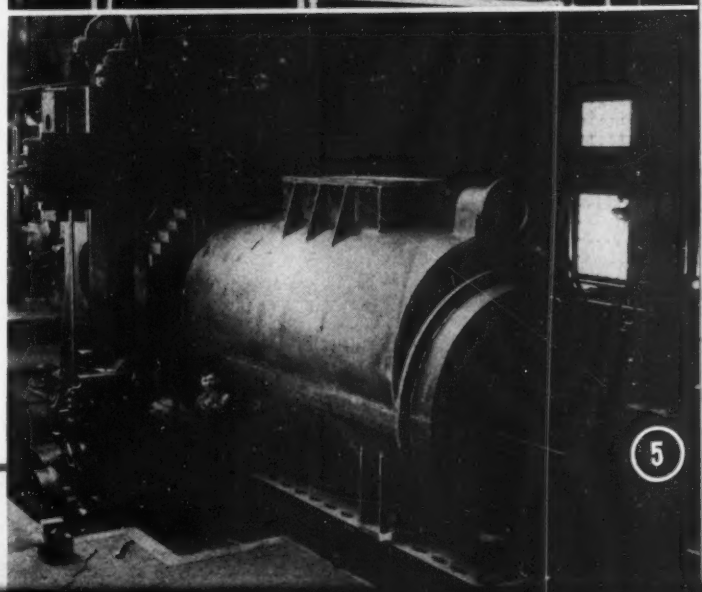
Fig. 2—Scarfing condenser plate on plate planer

Fig. 3 — Holes being drilled in exhaust neck flange on 3800-square-foot condenser

Fig. 4 — Twenty-four thousand-square-foot surface condenser shell on welding turn table

Fig. 5—Lining up 7000-square-foot condenser shell on planer





which are not active in condensing steam. From engineering design on through production—making molds for casting water boxes, handling, forming and welding the shells, machining the water boxes, tube sheets, steady plates, on to erection and test and ultimate installation—the company's design and production know-how and shop facilities are complete.

Forming Shell—The modern surface condenser shell is fabricated from steel plate with the component parts formed to the desired shape and welded together to make a vacuum-tight structure. Every condenser shell is tailored to individual specifications, resulting in a wide variety of sizes and shapes. The company's tank and plate shops include every type of equipment required to meet such conditions. Included is the latest in welding equipment. Research engineers carry on a continuous program for developing and improving welding procedures and technique. A small portion of the equipment available is illustrated here.

Fig. 1 shows the main section of a condenser shell being formed in a roll. This is a steel plate for a 8000, square-foot condenser. To form the desired shape, the plate is rolled back and forth with pressure on the upper roll varied to obtain the proper curvature. Before rolling, the edges of the plate which are to be

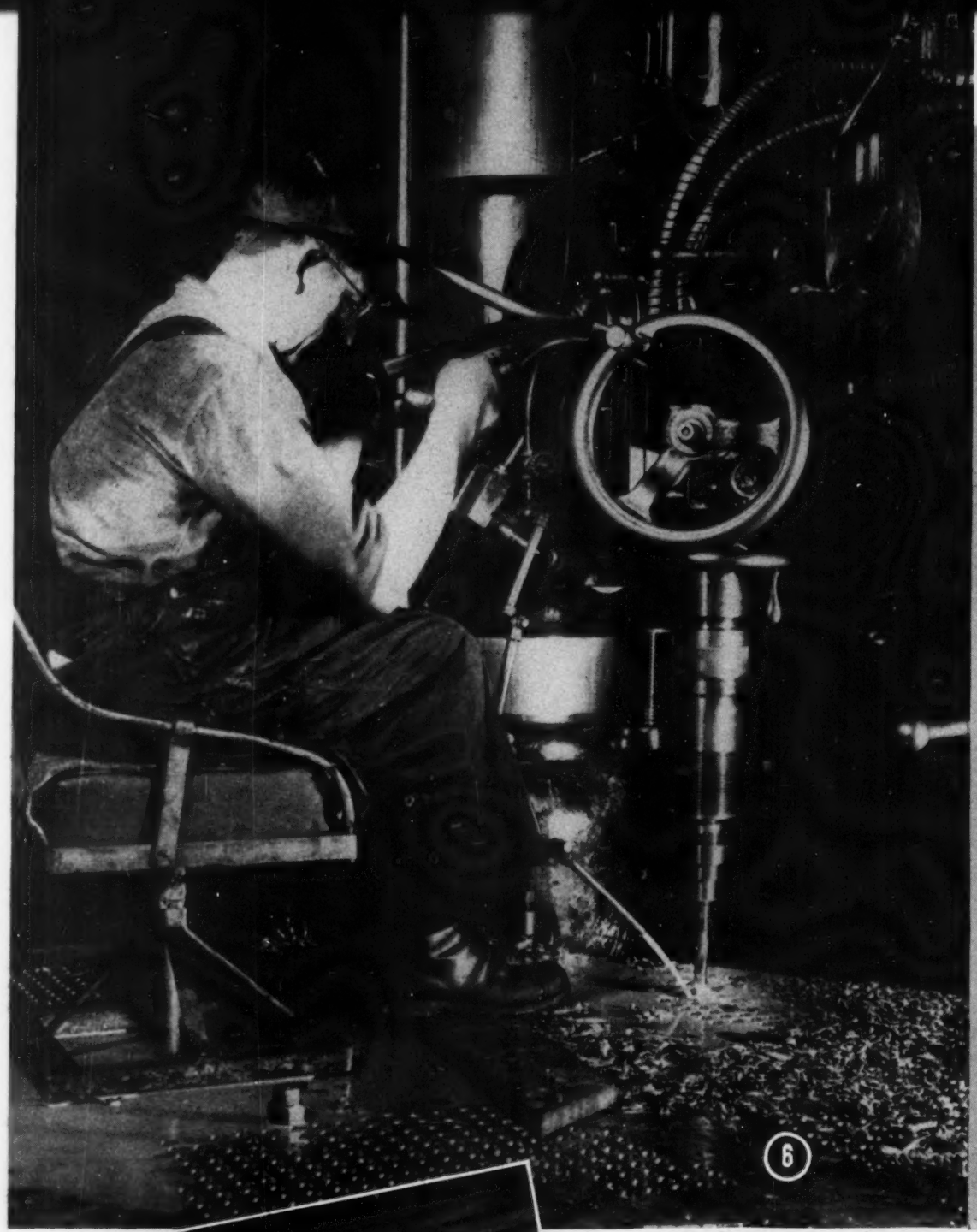


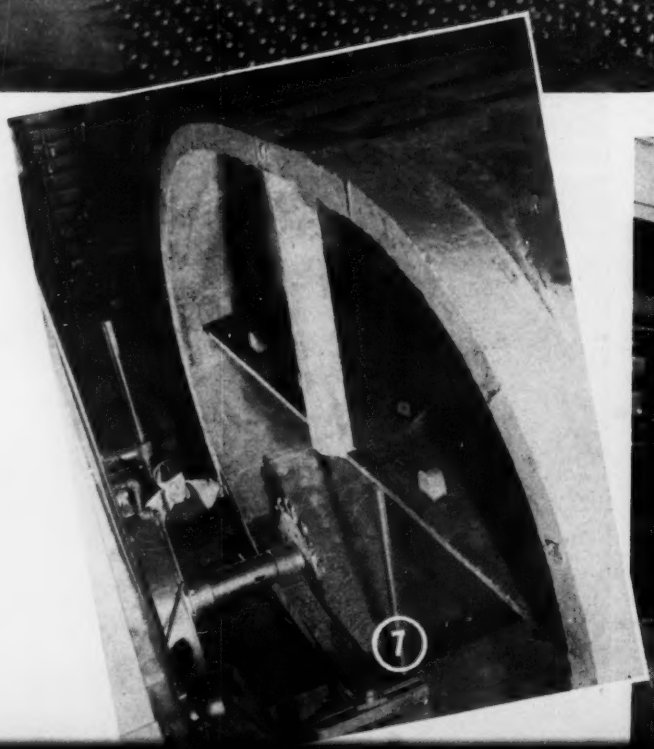
Fig. 6 — Tube sheet drilling

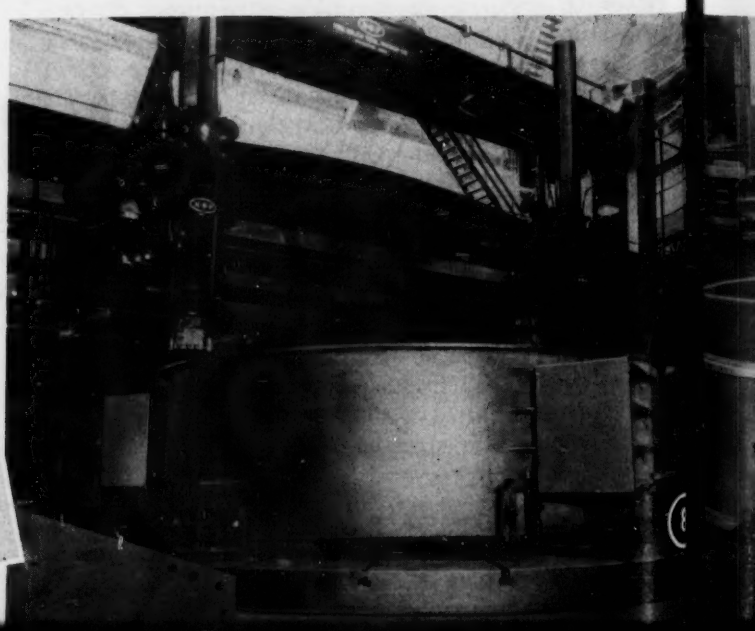
Fig. 7 — Cutting off riser on front water box for 25,000 - square - foot surface condenser

Fig. 8—End section of a 75,000-square-foot condenser mounted on a 40-foot boring mill

Fig. 9 — Machining vertical supporting structure of front water box of a two-pass condenser

Fig. 10—Special type water box set upside down to facilitate shaping operation





joined by welding are "scarfed" or beveled to facilitate welding. An operation of this type on a large piece of plate is illustrated in Fig. 2.

After the various shell parts are formed to their required shapes, the integral parts are fitted together in preparation for permanent welding, either in the shops or in the field, depending upon the size of the condenser involved. Even in the event final assembly will take place in the field, a large portion of the permanent welding is done in the company's shops.

During the fabrication of a condenser shell it is necessary to use temporary supporting and bracing members, to insure proper alignment while welding. Supporting feet are tack welded into place.

In any welding operation it is advantageous to eliminate overhead welding, or even vertical welding, wherever possible. Best results are always obtained when the welder can assume a comfortable natural position while doing his work. To make this possible, the Allis-Chalmers shops are well equipped with a variety of welding positioners and overhead cranes capable of handling the very largest condensers.

Fig. 4 illustrates a 24,000-square-foot condenser mounted on large welding positioner, while the condenser supporting feet are welded to the shell. This picture well illustrates the difficulty which would be experienced if this operation had to be performed with the condenser placed in its natural upright position.

Figs. 1, 2 and 4 were taken in the tank and plate shop, which uses 4 million pounds of plates and bars per month in the fabrication of the company's 1600 products. At normal production, 50,000 pounds of welding rod are used per month. This shop contains what is reported to be the largest positioning table in the western hemisphere. It will handle a 50-ton load—can be positioned from the horizontal to the vertical, and rotate a piece 30 feet in diameter, see Fig. 4.

The tank and plate shop is also equipped with vertical bending rolls, capable of rolling bars 12 x 12 to 92 inches diameter and over. In addition horizontal bending rolls, Fig. 1, capable of forming and rolling hot plates 6 inches thick are available.

Forming Flanges—Condenser shell flanges to which the tube sheets and water boxes are bolted are made of steel and welded to the shell. After welding, they are machined to a true surface and drilled for bolting. Two different methods of forming the flanges are used. In general, heavier flanges are formed by rolling, and the lighter ones are cut from flat steel plate. Accuracy of the shell in its final form depends to a great extent on the skill of the operators.

Machining Flanges—In order to obtain the best possible condenser performance, it is essential that all flanged connections with the vacuum system be absolutely vacuum-tight. Largest flanged connection to the vacuum system is generally at each end of the shell, where the tube sheet and water box are connected. To insure a vacuum-tight connection between shell flange and tube sheet for the life of the condenser, matching semi-circular grooves are machined in the flange and tube sheet into which a plastic cement is forced under pressure to form a permanent vacuum tight connection.

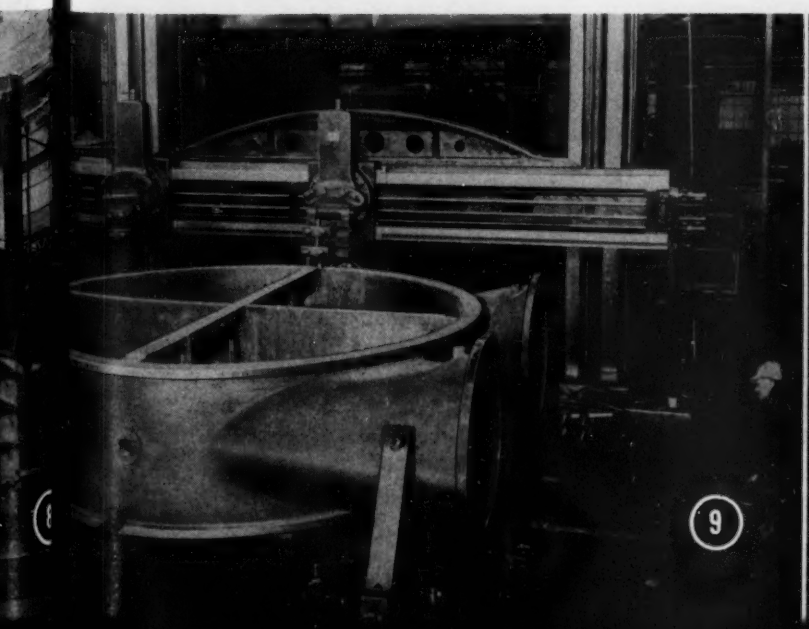
Machining Shell—In addition to proper design, the performance of a condenser is dependent on proper machine work, which can be accomplished only in a shop equipped with a complete line of machine tools.

Holes are being drilled in the exhaust neck flange of the 3800-square-foot condenser, Fig. 3. These holes must be accurately located to insure proper alignment with the turbine exhaust flange during erection in the field. To perform this operation, a horizontal drill press is used with the condenser placed on its side. On the condenser an Allis-Chalmers expansion joint has been built into the condenser neck, eliminating a flanged joint in cases where the condenser is set on a solid foundation.

In Fig. 5, a 7000-square-foot condenser shell is being lined up on a planer. In the operation to follow exhaust steam inlet flange will be machined.

Among the machine tools in the Allis-Chalmers shops is the huge 40-foot boring mill, mentioned previously. This machine is constantly called upon to handle extremely large equipment. In Fig. 8, an end section of a 75,000-square-foot condenser is mounted on the mill for machining the tube sheet flange. This shell has a diameter of 21 feet, which necessitates the use of a large machine of this type.

Miscellaneous Machining — Water boxes and tube



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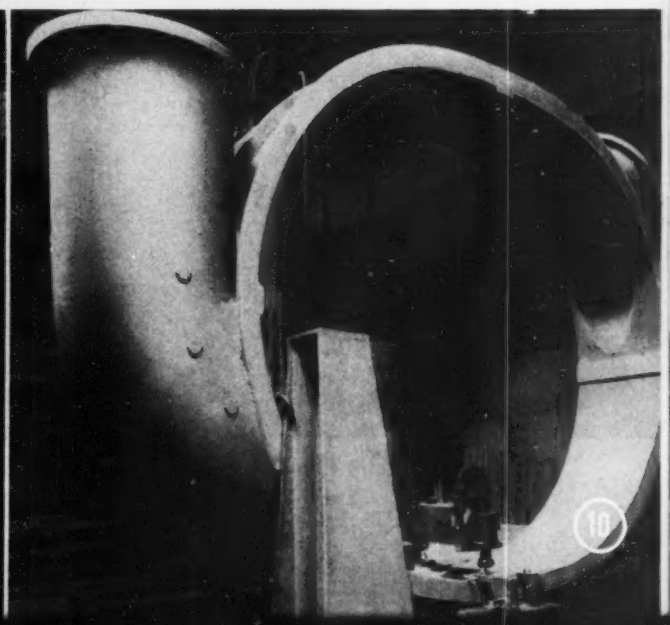

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sheets are attached to the condenser shell flange by means of bolts so arranged that the water boxes may be removed without breaking the joint between shell and tube sheet. It is very important that the holes line up to form a good fit. This is accomplished by laying out bolt holes on one tube sheet and using the sheet as a template to drill all of the holes on flanges at both ends of the condenser. Also, by doing this, the water boxes or tube sheets may be reversed without difficulty, if desired.

To retard corrosion, condenser water boxes are generally made of cast iron. However, under certain conditions they may also be fabricated of welded steel plate. Fig. 7 shows a large water box casting as received from the foundry. In the operation shown, the riser is being cut from the casting on a large horizontal type bar using a special slitting cutter.

Condenser water boxes vary greatly in size and shape, and each presents its own particular machining problem. To handle and machine a small 36-inch diameter water box, weighing only a few hundred pounds, is quite far removed from performing these operations on a 12 x 24-foot oval water box, weighing perhaps 40,000 pounds. However, the accuracy involved is the same regardless of the size, and very close tolerances must be maintained to insure trouble free performance.

Front water box of a two-pass condenser is shown in Fig. 9 setup in a planer. Operation here involves machining the vertical supporting structure. Certain operations such as are illustrated here, on account of their size and advantage of being able to machine two surfaces at one time, make use of the company's largest planer, 14 x 11 x 32 feet, particularly economical. Fig. 10 shows a special type water box set upside down to facilitate a shaping operation.

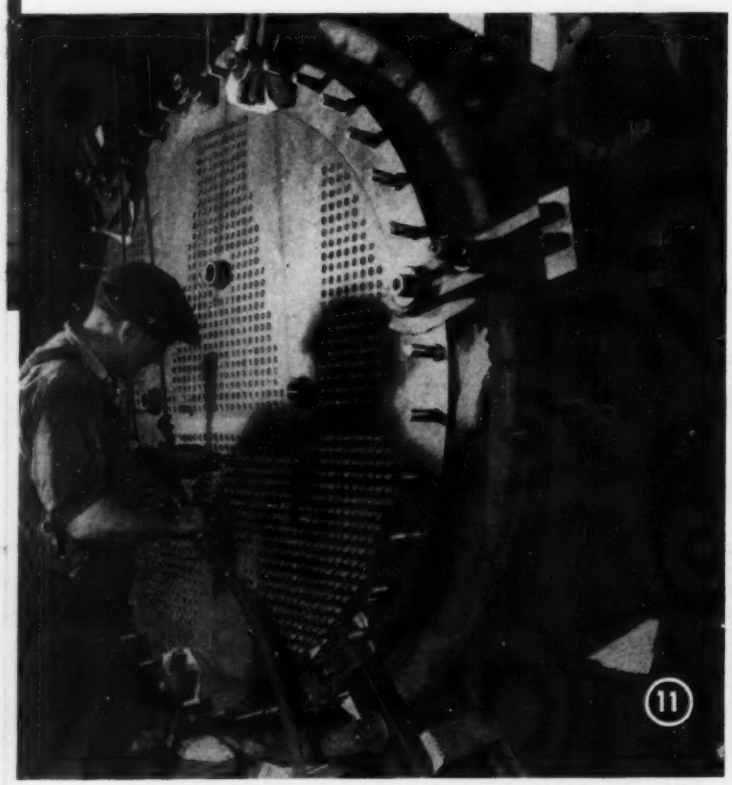


Fig. 11—Rolling tubes into tube sheet

A large surface condenser will contain several thousand tubes, which means an equal number of holes in each tube sheet and steady plate. To insure proper alignment of tubes requires great skill first in laying out the original pattern, and later in the drilling operation. Tube sheets are usually made of Muntz metal and steady plates of steel plate. It is customary to lay out the drill pattern on one tube sheet which in turn is used as a template for drilling the other tube sheet and all of the steady plates. Such a procedure guarantees that all tube holes will line up perfectly, with resulting trouble-free performance and longer tube life. Condenser tubes are slightly bowed upward at the center to facilitate drainage towards the ends, when the condenser is not in use, and to prevent vibration due to the impact of the high velocity steam leaving the last row of turbine blading. Fig. 6 is a view of tube sheet drilling.

Tubing Condensers—Condensers smaller than 15,000 square feet in size are ordinarily tubed in the Allis-Chalmers shops, unless transportation limitations prevent shipment of the assembled condenser. In this case the tubes are installed in the field. In most instances the condenser tubes are fixed into position by rolling them into the tube sheets at each end. To prevent undue stress on the tubes, and the possibility of leaks with changes in temperature, an expansion joint specially developed by company engineers is welded into the condenser shell.

Tubes are threaded through the support plates and into the back tube sheet. After all tubes have been inserted in this way, the front tube sheet will be attached to the condenser shell and the tubes will be worked back into position for rolling. Compression clamps are attached to the expansion joint, and after all tubes have been fixed into position, the clamps will be removed, putting an initial tension on the tubes.

An absolutely leak-proof connection between tube and tube sheet is essential to proper condenser performance, and such a bond is dependent to a large extent on the skill of the workman. An excessive amount of rolling may weaken the tube and not enough may allow leaks to develop. To insure a tight permanent connection between tube and tube sheet, two circular grooves are cut in the tube hole and when rolling, the tube metal flows into these grooves taking a firm grip. Fig. 11 shows tubes being rolled into tube sheet.

Circulating water inlet end of each tube extends a fraction of an inch beyond the tube sheet and the tube sheet and the tube end is flared to provide a venturi entrance to insure a smooth flow of the water to prevent corrosion and erosion.

Assembly of Completed Parts—When possible, a condenser is completely assembled in the company shops and shipped as a completed unit. Due to shipping limitations and the heavy weights involved, it is often necessary, in the case of the larger sizes, to complete the assembly in the field. When this procedure is followed, the condenser shell section is always lined up and temporary bracing inserted, to guarantee alignment on the purchaser's foundations.

In this practical approach to the practical problem of choosing and applying the proper organic coating, gun and electrostatic spray finishing, infrared baking and metal preparation are summarized

Organic Finishes

FOR METAL PRODUCTS

With this article STEEL introduces a series of reports on recent developments in the highly progressive science of protecting metal parts with organic coatings. Subsequent articles will continue the discussion of surface preparation and deal with the selection, evaluation and application of various materials, and testing finishes for appearance, physical properties, economy

ORGANIC finishes are used on metal products for one or both of the two following reasons: (1) Protection against corrosion, and (2) to give the product appearance for sales appeal and customer satisfaction. The selection of a finish is dependent on the use of the end product. No matter what the product is, it should be a balanced finish, in which an outstanding property is not gained at the sacrifice of other necessary properties.

Many organic coatings have failed to give satisfactory protection against corrosion simply because all the factors which accelerate corrosion or which make it possible to coat a surface efficiently are not understood. Considering the investment the manufacturer of metal products has in the actual cost of protective coating materials, together with the fact that the labor cost of application is usually several times the raw materials cost, it becomes evident that proper selection and evaluation of protective coatings assume roles of great importance to the economy of many metalworking plants.

In every case, the first question about any finishing material for metal products concerns quality. To be considered for a new application, or to be competitive with a material already in use, standards of durability and appearance must be met. In other words, the material must be capable of satisfactory service in the field. After quality, the cost per unit

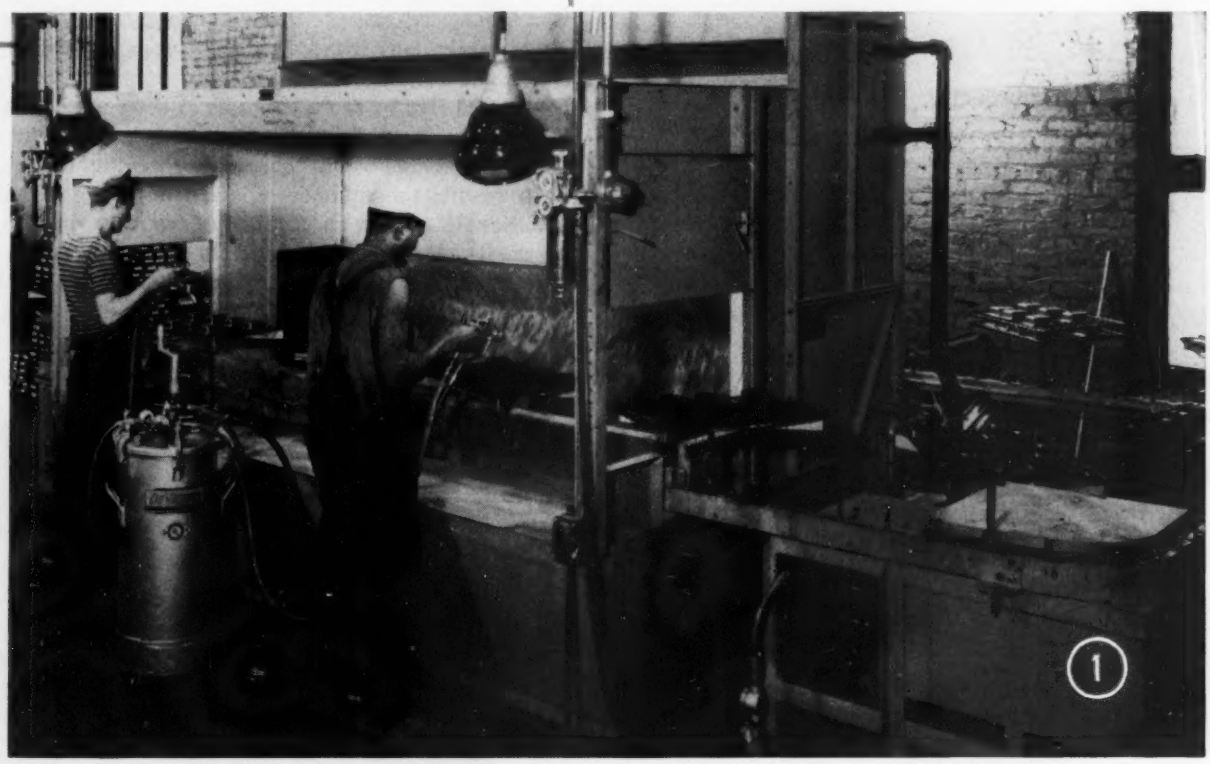


Fig. 1—An operator with modern equipment can apply a coat of finishing material to several thousand square feet of metal products in an 8-hour day, area varying greatly according to articles being finished and continuity of the operations. Courtesy The DeVilbiss Co.

Organic Finishes

finished must be considered, with special attention to the opportunity for economy. Next in line to be considered is performance in production. Thus, difficulty in handling the material, the necessity for extra equipment or special methods, are definitely factors in the choice of a finishing material. Processing limitations frequently determine the ultimate selection at some sacrifice in the desired qualities of the protective coating.

Properties—Organic coatings are effective means of preventing the corrosion of metals primarily because they serve as protective barriers between the metal to be protected and the environment in which the corrosion will occur. Effectiveness of such a coating system is related to four factors: (1) The coating as applied must be continuous; (2) it must resist the spread of corrosion from bare spots on the metal and uncoated areas; (3) it must have a high degree of impermeability to the elements of its environment; and, (4) must be of such a nature that it will not be degraded by its environment.[1]

Continuity—In actual practice, it is generally recognized that it is very difficult to apply a coating system so as to form a continuous film, with even the best coating systems available. Furthermore, if the coating is applied free from discontinuities, initially, there is always the possibility that the coating may be accidentally injured to produce a bare spot during its service life. The problem of producing and maintaining a continuous coating creates the necessity for selecting coatings which have suitable properties and for exercising great care in applying them.

One of the best ways to keep to a minimum the number and size of the discontinuities in a coating is to apply more than one coat. A single-coat system is seldom used except where the conditions of use are only mildly corrosive. In most cases, two to three coats are recommended, and for extremely corrosive conditions five or more coats have been used. Discontinuities in any one of a series of coats will not usually coincide with those in preceding coats, and as a result, the number of accidental discontinuities which will remain in a finished coating will be decreased considerably with each succeeding coat.

Spray Finishing—Spray painting or spray finishing is the method most universally used in modern in-

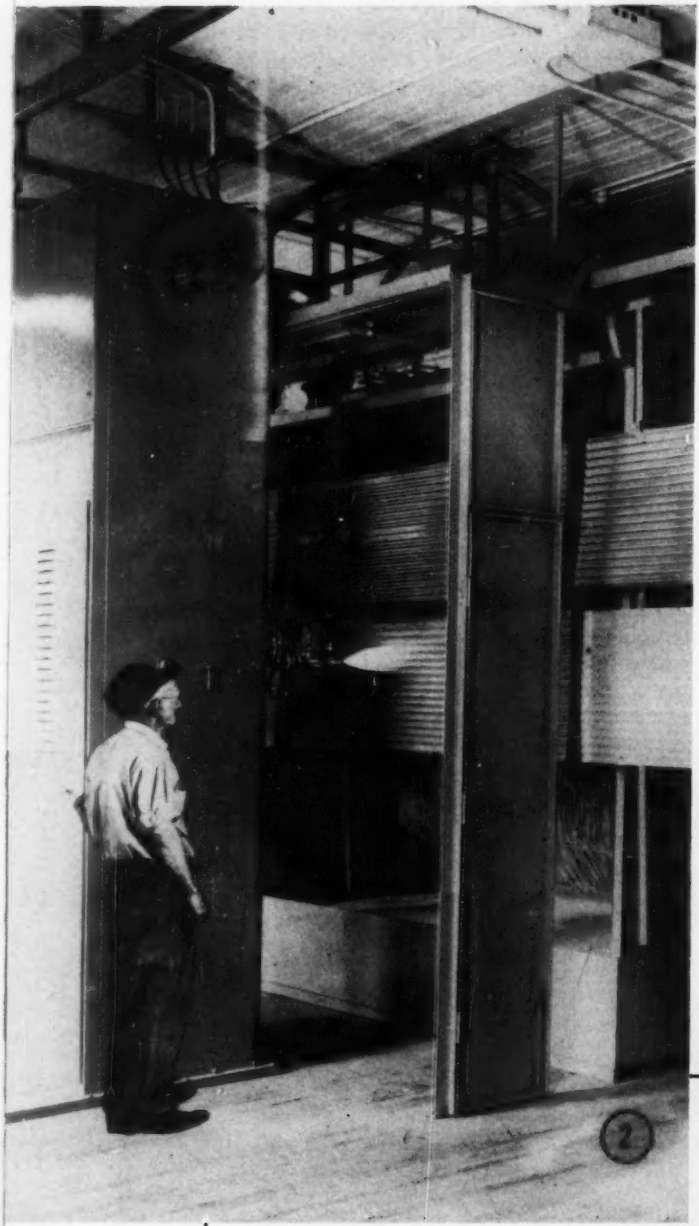


Fig. 2—Spraying finish automatically. Courtesy The DeVilbiss Co.

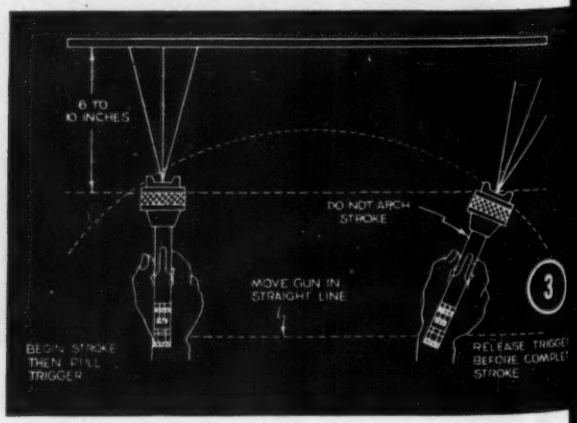

6 TO 10 INCHES
DO NOT ARCH STROKE
MOVE GUN IN STRAIGHT LINE
3
BEGIN STROKE THEN PULL TRIGGER
RELEASE TRIGGER BEFORE COMPLETE STROKE

Fig. 3—Proper method of making a spray gun stroke. The gun is triggered at both start and end of stroke

Fig. 4—Correct method of spraying corners to avoid excessive overspray

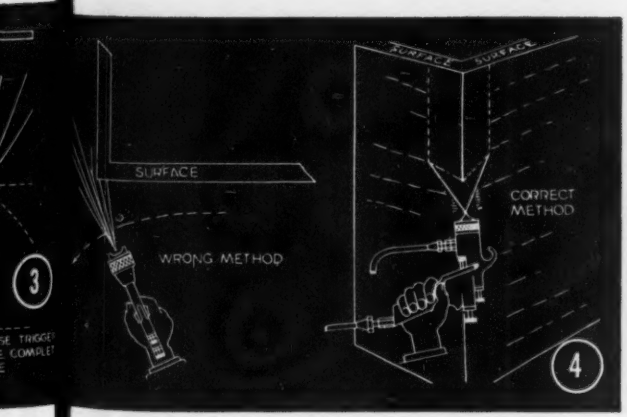
dustrial finishing operations. The reason for its predominance lies in its speed, adaptability to all conditions, and the smooth even and clean coat produced by its use. An operator with modern equipment, such as illustrated in Fig. 1, can apply a coat of finishing material to several thousand square feet of area in an 8-hour day, the area varying greatly according to the articles being finished and the continuity of the operation.

Clean coats of uniform thickness are made possible by spray finishing. These characteristics have much to do with the continuity and over-all quality of the finish obtained. In only a relatively few cases is dipping, roller-coating or some other method more suitable, where quality is an important factor. Small articles, in large numbers, are best finished by dipping, tumbling, or centrifugal finishing. However, it is almost universally true that any article can be economically finished by spraying.

To secure large unit production at low cost, and to insure continuity and uniformity of the coating applied, some manufacturers of metal products are employing completely automatic spraying equipment. Generally, the equipment must be specially designed, based upon production rate, materials used, taking into consideration the nature of the articles to be finished. Naturally, the greatest economy and uniformity of results will be secured when a large area is to be finished, such as illustrated in Fig. 2. However, similar economies may be had when a large number of similar articles are to be finished. As a general rule, the proper type of automatic spray equipment used in conjunction with automatic conveyors and automatic drying ovens, insures a high rate of uniformly high quality production.

Spray Gun Technique—Proper method of making a spray gun stroke is to avoid swinging spray gun in an arc, since this causes too much paint to be applied at the center of the stroke and too little at the extreme ends. Waste due to excess vapor, of course, results. Also, the center of the stroke is wet, while the ends are dry and frosty. Under such conditions it is extremely difficult, if not almost impossible, to apply a uniform layer of organic finishing material.

Correct procedure is to hold the gun at right angles to the surface at all times and to trigger the gun at each end of the stroke. In other words, begin the stroke and then pull the trigger. At the end of the stroke, release the trigger before the stroke is completed. Figs. 3 and 4, illustrate these two important principles in spray painting, essential to the production of a continuous and uniform coating.



Electrostatic Spray Finishing—A recent development in spray painting which has contributed to increased durability of organic coatings is electrostatic spraying. The procedure involves the production of an electrostatic field about the object to be coated; metal objects to be sprayed are grounded. The electrostatic field is produced by a very high voltage, low amperage electrical circuit, the proper equipment for use in finishing room installations having been developed by the Harper J. Ransburg Co., Indianapolis.

As the atomized finishing material from the spray gun enters the electrostatic field, each particle picks up an electric charge. This charge causes the particles to repel each other and to be attracted to the grounded surface, as is illustrated in Fig. 5. This results in a very substantial reduction in loss by over spray, and the coating deposited on the article is reported to be much more uniform than in conventional spray-finishing.

The Ransburg electrostatic detearing process is based upon the same principle, that is, electrical attraction of opposite charges. The action, however, is in the reverse direction in that the process automatically removes the excess coating or fatty edges at drain off points as the coated article is passed adjacent to an electrostatically charged grid or plate.

Detearing process may be used to advantage when the coating material is applied by the dip or flo-coat method, which causes an accumulation of excess material at the drain off points. The dipped article is carried over a drain board, and when it has finished draining and "tears" or fatty edges remain, it is passed over or between grids of expanded metal, which are maintained at high electrical potential. The resultant attraction effectively removes the excess material. The process is reported to be especially desirable where a smooth appearance is desired, or to minimize soft paint films, wrinkles or chipping from excessively coated edges.

Infra-Red Baking—Infra-red baking methods have found wide application, particularly in many conveyorized finishing systems. A completely conveyorized finishing system has many advantages. It reduces handling and eliminates to a large extent the necessity for touch up work later which interferes with the continuity and uniformity of the applied organic coating. Shown in Fig. 6 is an infra-red baking cycle being used in a finishing operation involving household appliances.

To use radiant heat to the best advantage, it is obvious that consideration must be given to the thermal laws governing its behavior. Materials to be baked by infra-red should be chosen for their adaptability to the advantages offered by it. One of these factors is the effect of polymerizing materials on the rate of film hardening at high temperatures. The fact should be recognized that economy and increased production will result from the judicious formulation

of protective coatings for the high-temperature, short schedule baking conditions made possible by radiant heat baking.

Type of finish is an important factor in the consideration of infra-red radiant heating. In general, the curing of finishes that utilize an oxidation reaction cannot be accelerated sufficiently to warrant the adoption of infra-red.[2] Those finishes that cure primarily by polymerization or by evaporation are generally suitable to the infra-red process, the polymerization type finishes, as pointed out above, being particularly suited to short-cycle curing.

Multicolored finishes on the same part may offer some difficulty in baking. For example, the dark finish on a part will heat faster and reach a higher end temperature than a lighter portion. Thus, under such conditions there is danger of not obtaining the proper range of curing or baking temperatures for the different colored finishes. Special formulations of varied-color paints will sometimes equalize curing temperatures. Assuming a properly designed and engineered installation, the radiant heating method of curing organic coatings has flexibility and good control.

Design—Many organic coatings fail because all the factors which accelerate corrosion are not understood. For instance, unlike metals in contact with each other in structures submerged in water constitute an electrical unit which will accelerate the corrosion of one of the metals unless both metals are effectively coated. If only the corroding metal is coated and if the coating is not perfect, galvanic action is localized and intensified at breaks in the coating film; and deep pitting or even in some cases perforation will occur.

Another obstacle to good coating applications is complex structural design. It is difficult to do a good coating job on a surface that has narrow crevices and sharp edges. This is true because coatings flow away from edges and because solvents which must escape from organic films in crevices inevitably leave discontinuities in the cured film. Metal equipment and machinery which must be protected by coatings should be designed to have as smooth a profile as possible, with a minimum of complicating surface details.

It is not necessary that a design engineer for metal products be familiar with all types of organic coating; but it is desirable that he have an understanding of the fundamental corrosion processes and of the mechanics of corrosion prevention by means of organic coatings. Equipped with such information the metalworking engineer will consider corrosion prevention as another problem in design. Too frequently, corrosion prevention through proper use of organic coatings is only a necessary after-thought. Many of the difficulties with which organic coating technologists in the metalworking industry are confronted might have been avoided on the drawing table.

Metal Preparation—Preparation of metal surfaces for organic coatings is one of the most important phases of the organic finishing cycle for metal products. Best organic finish applied over improperly prepared surfaces is certain to be subject to premature failure. Often premature failures are blamed on the finishing materials, when the true cause is improper surface preparation, or detrimental contamination on the surface prior to painting.

In general, the useful life of any organic finish depends on two major factors: Durability of the organic coating film itself and the adherence of the film to the surface to which it is applied.[3] Providing metals with a nonmetallic coating of the proper texture adapted to inhibiting corrosion and increasing the adhesion to the final organic finish are the primary factors in the preparation of metal products for painting. Cleaning and preparing metal for paint-

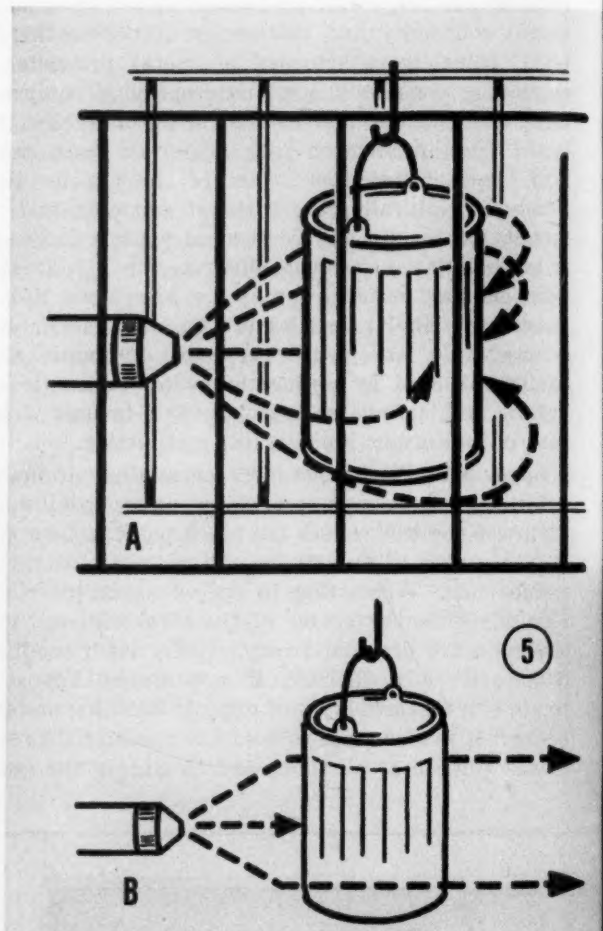


Fig. 5—Spraying in an electrostatic field such as is shown in A makes for more efficient utilization of coating material. Overspray resulting from the use of ordinary methods, B, is largely avoided

Fig. 6—Infrared baking cycle used in a finishing operation on washing machines. Baked at 300° F for 9 minutes the 20-gage steel units are rotated as they pass through the oven. Courtesy Fostoria Service

ing is so common and familiar that it is apt to receive but minor consideration with regard to the paint coating itself, and the fact that it has a definite function in relation to the useful life of the paint finish, is often overlooked by the manufacturer.

In the previous section of this series, it was emphasized that a coating, to be effective protection, must be continuous. In actual practice, however, it is difficult to apply a coating so as to form a perfectly continuous film, even with the best coating systems available.

Thus the presence of discontinuities, however formed, is one reason for establishing this requisite characteristic of a good coating system, namely, the ability to resist the spread of corrosion from areas exposed by discontinuities, and the enlargement of the discontinuities themselves. In this way coatings are not always weakened or destroyed directly by their environment. Frequently, they are degraded by products of corrosion reactions near or under them.

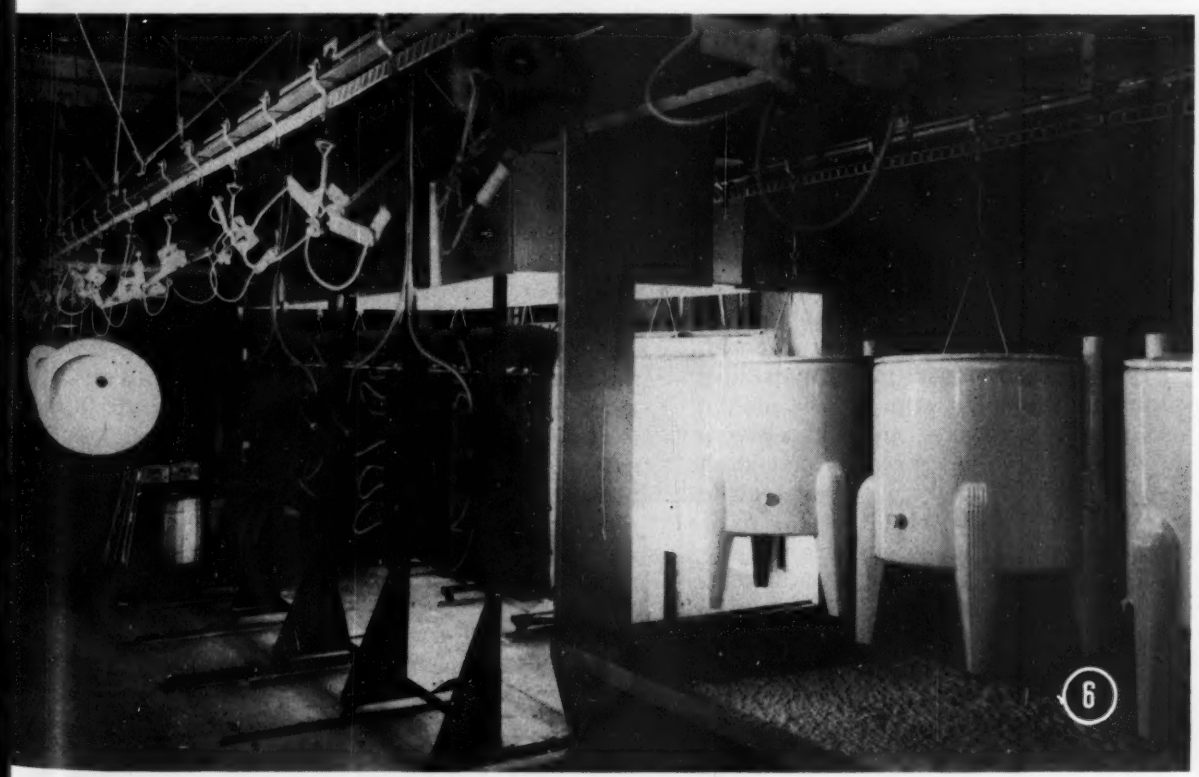
Restricting corrosion to areas of bare metal by means of organic coatings is also the function of the adhesion of the coating itself to the surface of the metal. Permanent adhesion is clearly the primary requisite for improving practice in painting metal products. Adhesion of the coating is basically of two kinds: Mechanical and chemical. Mechanical adhesion, which is mainly "keying" or locking, depends on the character of the metal surface. Chemical adhesion is a function of the coating material.

In the resin phase, a coating material consists of very large molecules which may be long chains, closed chains, cross-linked chains, or any combination of these types. These resin molecules vary in size and shape, and they have various molecular fields of force about them. Attraction is stronger between a metal surface and strongly polar groups of molecules, so coatings which contain such molecule groups adhere more firmly to metal than do coatings in which the groups are only weakly polar.

It is generally thought that attraction of polar resin molecules to metal is more important in providing adhesion of coatings than in mechanical "keying" or locking. However, to take the fullest advantage of the chemical factors which provide adhesion, it is necessary that the surface of the metal to be coated be clean, because a film of grease or dirt on the surface can seriously diminish the attraction between the molecules of the coating and the surface of the metal or the metal compound.[1]

Failure by Undercutting—Discontinuities in coating films can permit the progress of still another reaction which is not a degradation of the film itself, but nevertheless, destroys the efficiency of the coating. This corrosion process is generally known as undercutting. Undercutting, therefore, is that process by which a coating is loosened from metal adjacent to exposed areas by corrosion of the metal under the coating. The corrosivity of a metal in the environment in which it is used is known to affect the protective life of applied paint coatings. For that reason, surface treatment has been stressed by many investigators[4] in preparing metal products for organic coatings, and without exception the treatments recommended have as their main objective the formation of a stable and nonreactive coating chemically combined with the base metal, which not only retards corrosion, but provides greater adhesion of applied paint finishes.

Thus pretreatment of metal products to prevent underfilm corrosion is common practice to improve the service life of the coatings applied. In general, such processes consist of producing on the surface of the metal, by reaction with the metal itself, a suitable



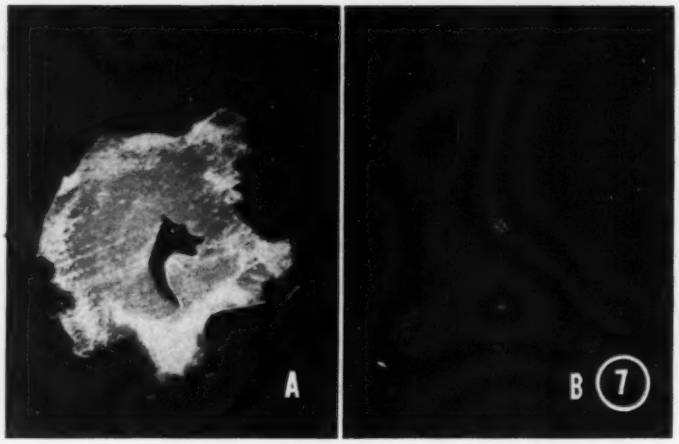
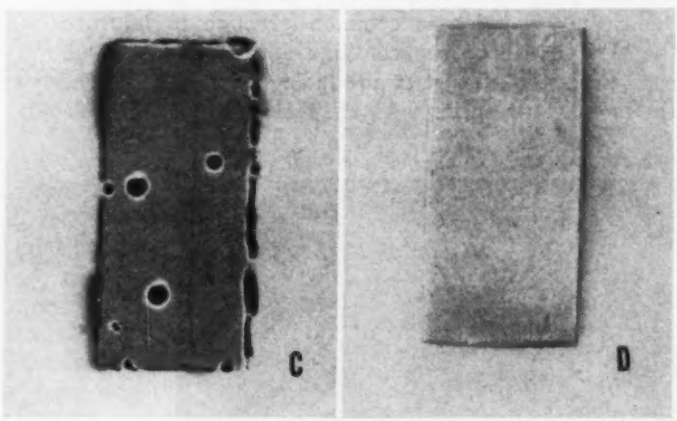


Fig. 7A—Reactions illustrating retardation of electrochemical corrosion on a steel surface by means of conversion coatings of the phosphate type. A—Plain, untreated steel panel carrying two coats of baked enamel, pricked and subjected to 96 hours in salt spray. Light areas show where corrosion products have destroyed the paint film surrounding the rusted abrasion. B—Steel panel given a commercial phosphate coating, known as bonderizing, and treated same as A. Slight rust appears where metal was exposed, but no spreading of corrosion products to surrounding area has taken place. C—Plain, untreated steel sample tested in agar-agar medium. Dark areas indicate formation of ferrous iron from dissolved steel. D—Steel having a commercial phosphate coating such as B, tested in the same agar-agar solution. No reaction for dissolving iron is apparent



inert compound of the metal, such as the oxide or the phosphate. Such a coating is called a conversion coating. The type to be preferred in the particular coating application depends to some extent on the particular metal to be protected and the environmental conditions of service life exposure. For steel, the conversion coating is usually of the phosphate type, although it has been reported that the oxide type of coatings have been used for some applications. For aluminum, oxide and phosphate type coatings are used, whereas for zinc, in addition to the phosphate coatings, chromate types may be employed. Satisfactory pretreatment processes have also been worked out to prepare magnesium, copper alloys, and lead for painting.

Underfilm Corrosion on Steel Products—The electrochemical theory of corrosion postulates that a steel surface is not entirely homogeneous, and will tend to develop electropositive and electronegative areas which exhibit different corrosion tendencies. It has been well established that in the rusting of steel, as a result of these tendencies, two reactions take place simultaneously upon its surface. Ferrous ions pass into solution and hydroxyl ion or alkali, is formed. Thus, when these reactions take place on a painted steel surface, the paint film loses its adhesion progressively over an ever widening area.

Organic Finishes

It is generally accepted that such reactions are electrochemical in nature. In an aqueous environment, an area of bare metal which is exposed by an opening in the coating is anodic; the metal adjacent to such an area and beneath the surrounding coating is cathodic. As the electrochemical reactions proceed, the cathodic area becomes progressively alkaline, and the coating film in this area will progressively deteriorate.

These reactions may be demonstrated by placing a steel panel in an agar-agar solution to which has been added potassium ferricyanide and phenolphthalein, to test for ferrous iron and alkali, respectively. A blue color will develop where the ferrous iron forms, and a pink color will show where the hydroxyl ion, or alkali, is present. Fig. 7 is an illustration of these tests on plain steel surfaces, and on steel surfaces which have been treated with a well known phosphate type of conversion coating, designated commercially as bonderizing.[5]

With this knowledge of what actually takes place under the paint film when applied to steel, it is evident that something besides efficient cleaning and high quality paint are required to insure the longest possible service life for organic coatings on metal products. The proper selection of conversion coatings to be applied before organic finishing will go a long ways toward stopping the spread of rust and alkali under the paint film, even when the paint film is scratched enough to allow corrosion to take place.

Conversion coatings are nonmetallic, and because of their insulator action, stop the flow of small electrical current, so that alkali does not migrate to the electropositive areas, and does not become sufficiently concentrated to cause paint failures. According to present day electrochemical interpretations of the corrosion process, it is certain that even though rust will cause lack of adhesion to a paint film, the alkali formed as a result of corrosion is much more pernicious and causes more paint failures than the rust.

(To be continued)

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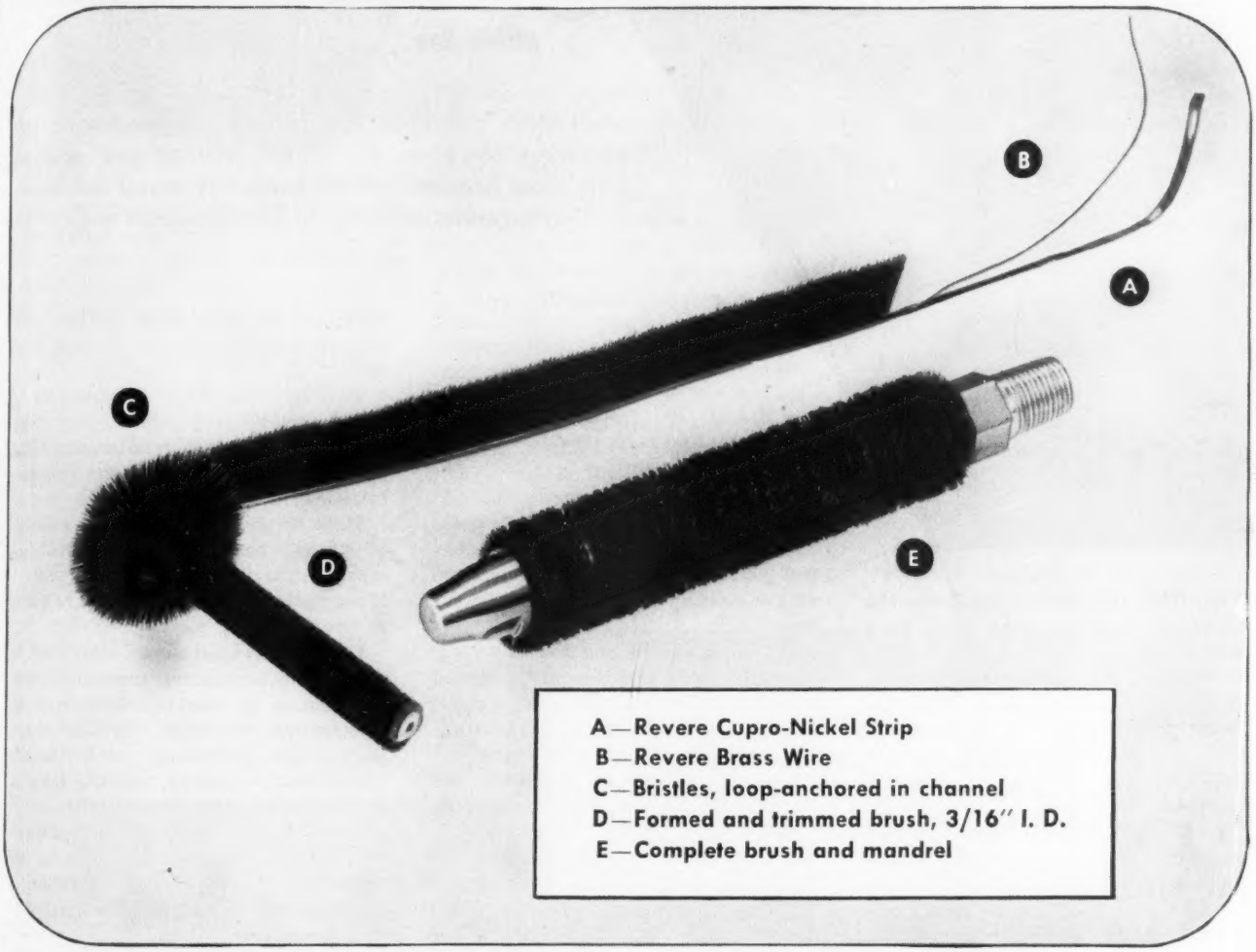
HOW FULLER AND REVERE LICKED

a tough brush problem



A—Revere Cupro-Nickel Strip
B—Revere Brass Wire
C—Bristles, loop-anchored in channel
D—Formed and trimmed brush, 3/16″ I. D.
E—Complete brush and mandrel

DAIRIES use a great many small cylindrical brushes to clean the insides of pasteurizing and other tubes through which milk flows. The Fuller Brush Company wished to offer this market brushes that would utilize its Fullergript principle, consisting of bristles loop-anchored inside a metal backbone. Such a brush would obviously provide superior cleaning performance, and longer life, than the tufted type. However, the small inside diameters of the dairy tubes meant that the metal backbone would have to be formed into an extremely small and close coil, with the inside diameter of the coil about 3/16". This posed the question: what metal or alloy would withstand this exceptionally severe double deformation?

After a few experiments had proved that the problem was far from easy, Revere was called in. The Revere Technical Advisory Service, after an extended study of the matter, suggested a trial of a certain gauge and type of cupro-nickel strip. A test run proved entirely successful, and regular production soon began. Thus Fuller was enabled to offer its Fullergript brushes to the dairy industry.

This is but one of a great many examples of Revere's successful collaboration with industry. If you have a fabrication problem in non-ferrous metals, get in touch with Revere.

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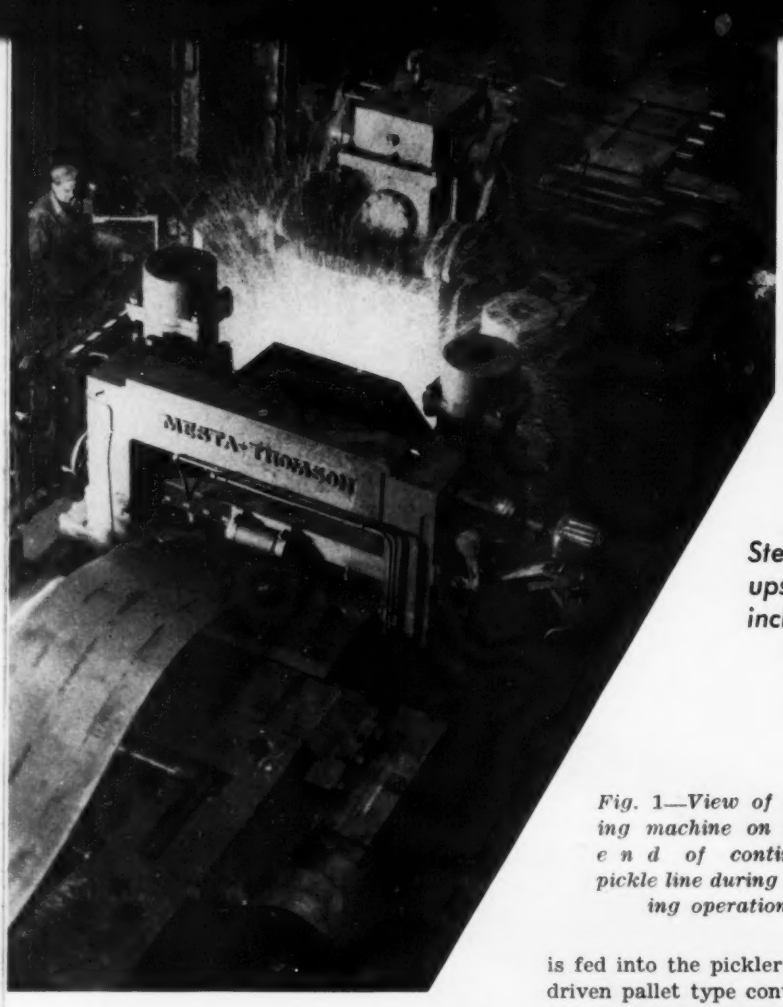

Electric Flash Welding

. . . a 10-second joining job on continuous pickle line

Steel strip coil ends are forged together with an upsetting force up to 12,000 pounds per square inch after heating. Flash is then trimmed off leaving a continuous strip of homogeneous metal

Fig. 1—View of welding machine on entry end of continuous pickle line during welding operation

WELDING machine, which heats the edges of hot-rolled strip steel to a molten state then forges them together with an upsetting impact up to 12,000 pounds per square inch, has recently been placed in operation on the new continuous pickle line at the Aliquippa Works of Jones & Laughlin Steel Corp.

In a welding time of about 10 seconds, coil ends are joined by a uniform and homogeneous weld necessary to permit the weld to be cold reduced along with the rest of the steel strip, under high tension and tremendous pressure on the new five stand tandem mill.

Design of the pickle line is on the basis of pickling at a speed in excess of 400 feet per minute to meet the ultimate rated capacity of 50,000 net tons per month. Hot-rolled strip in coils weighing 6000 to 7000 pounds is fed into the pickler by electrically driven pallet type conveyors and 30,000 pound maximuum coils emerge at the delivery end after being processed.

At entry end of pickling line strip is fed through an especially designed scale breaker without side guides. Coil ends are crop sheared, by an upcut shear with scrap handling arrangement, before strip reaches the flash welder which joins succeeding coils.

Welder Controls — Mechanical operations of the welder, including a feed and push-up of the strip, are hydraulically controlled during the welding operation. Electronic controls limit current during the welding cycle so that the steel is evenly heated to a molten state through a very uniform flashing period. This control is accomplished by use of an Ignitron contactor for energizing the two 350 kilovolt-ampere welding transformers.

Two Ignitron tubes are used in a back-to-back arrangement so that each tube conducts an alternate half cycle supplying continuous power to the weld.

Tube firing is controlled by means of "heat" control so that welding current is accurately regulated through the welding cycle resulting in even welding heat.

Cycle Controlled — In addition, it is possible to control accurately the duration of the cycle through use of a synchronous timer. In this way, each welding cycle can be initiated, the current regulated, and the length of the cycle controlled so that successive cycles accurately duplicate each other. Consequently, when an optimum cycle has been established for any material, it can be consistently repeated.

Range of adjustment is infinite within the 700 kilovolt-ampere capacity. As no mechanical moving parts are required in the controls, there is no problem of mechanical

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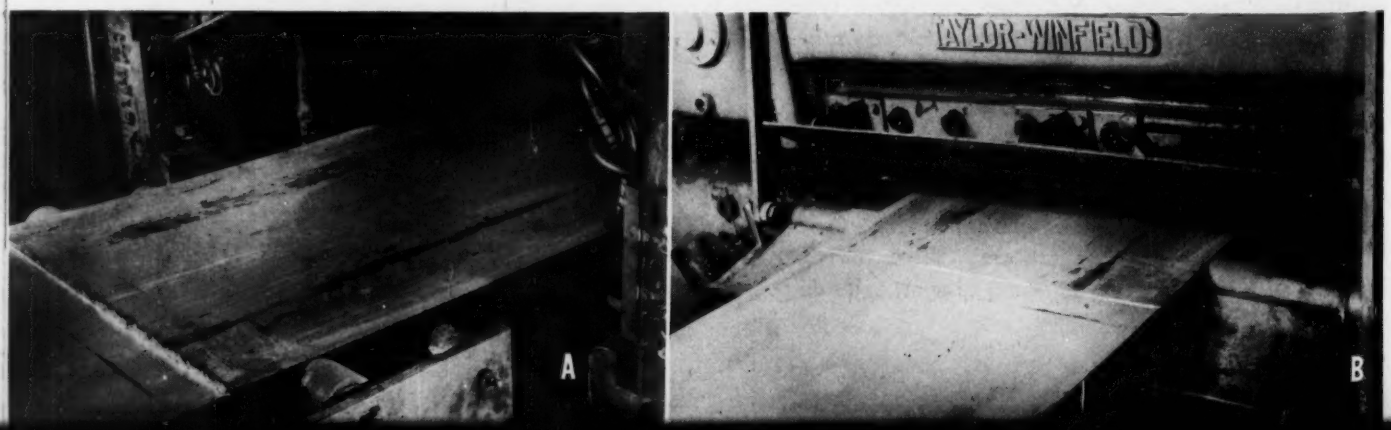


Fig. 2—Steel strip shown as it emerges (A) from the welding machine and (B) from flash trimmer. White mark across strip indicates location of the weld

High-Speed Deep Drawing

Pushes Aluminum Container Output to 1000 Per Day

Fast press work, modern heat treating practice, production welding and completely conveyorized handling used to advantage in producing 15½-gallon, light-weight brewery barrels

SKILLED press work, high production welding and 100 per cent conveyorized handling combine to roll 1000 aluminum beer barrels daily down the integrated production line of Benson Manufacturing Co., Kansas City.

Specialists in forming and fabricating light metals, the firm supplies 15½-gallon containers to the entire brewing industry, and foresees for the sturdy, lightweight barrel, important possibilities in packaging other liquids. Tipping the scales at 25 pounds, the aluminum barrel is less than one-third the weight of an oak barrel.

Deep Drawing—Production starts with deep-drawing barrel halves on a 500-ton double-action hydraulic press designed and built by Hydraulic Press Mfg. Co., Mount Gilead, O. The press is fed with mill-supplied aluminum circles blanked to the correct size. These blanks are loaded into a "ferris-wheel" rack, which revolves to pass them through a tank of drawing lubricant, into draining position.

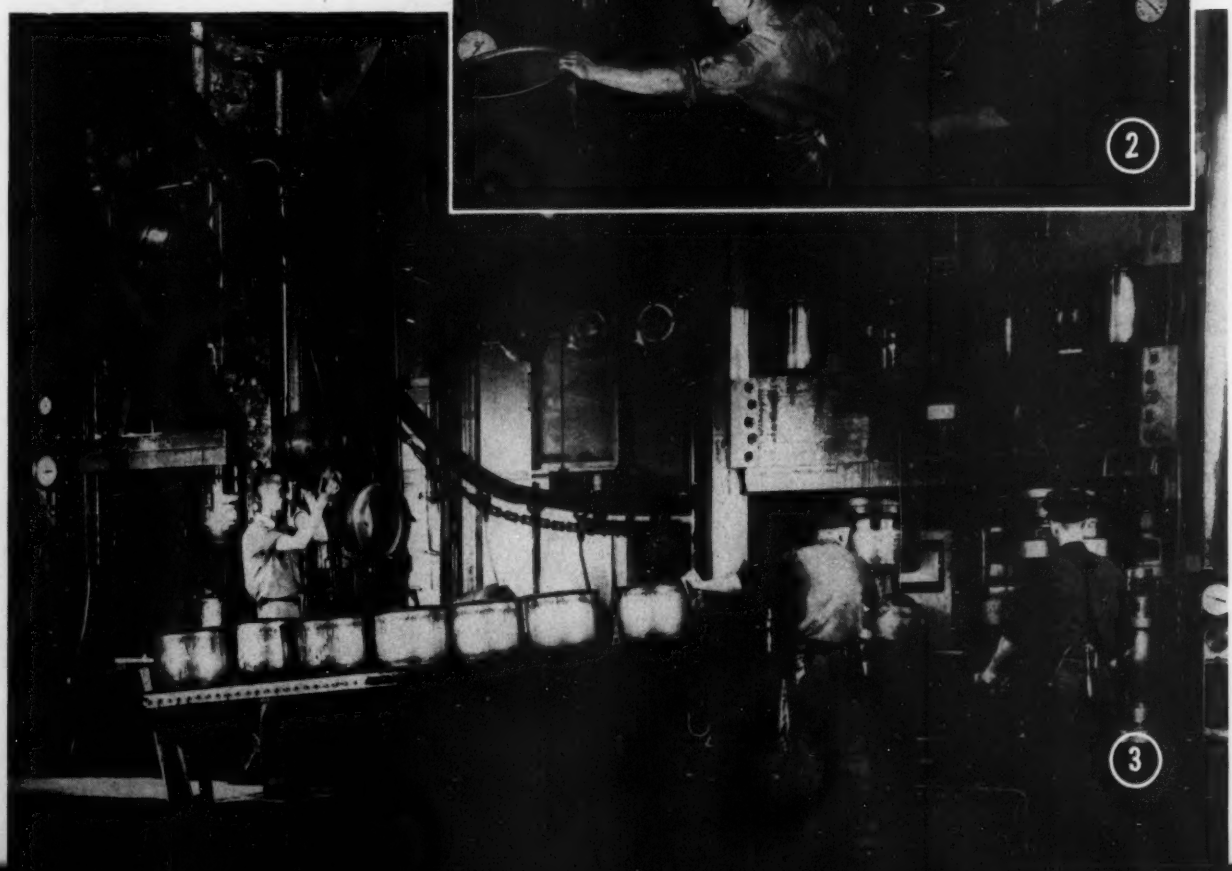
Progressive drawing dies are used on the press, drawing out the barrel half in two steps. Both dies are used simultaneously. Three separate press actions for each die contribute to smooth, trouble-free drawing. In addition to the main punch operation, an outer blankholding ring is set to feed the material during the draw, while a die cushion setting provides a positive bottoming action which eases the strenuous forming operation.

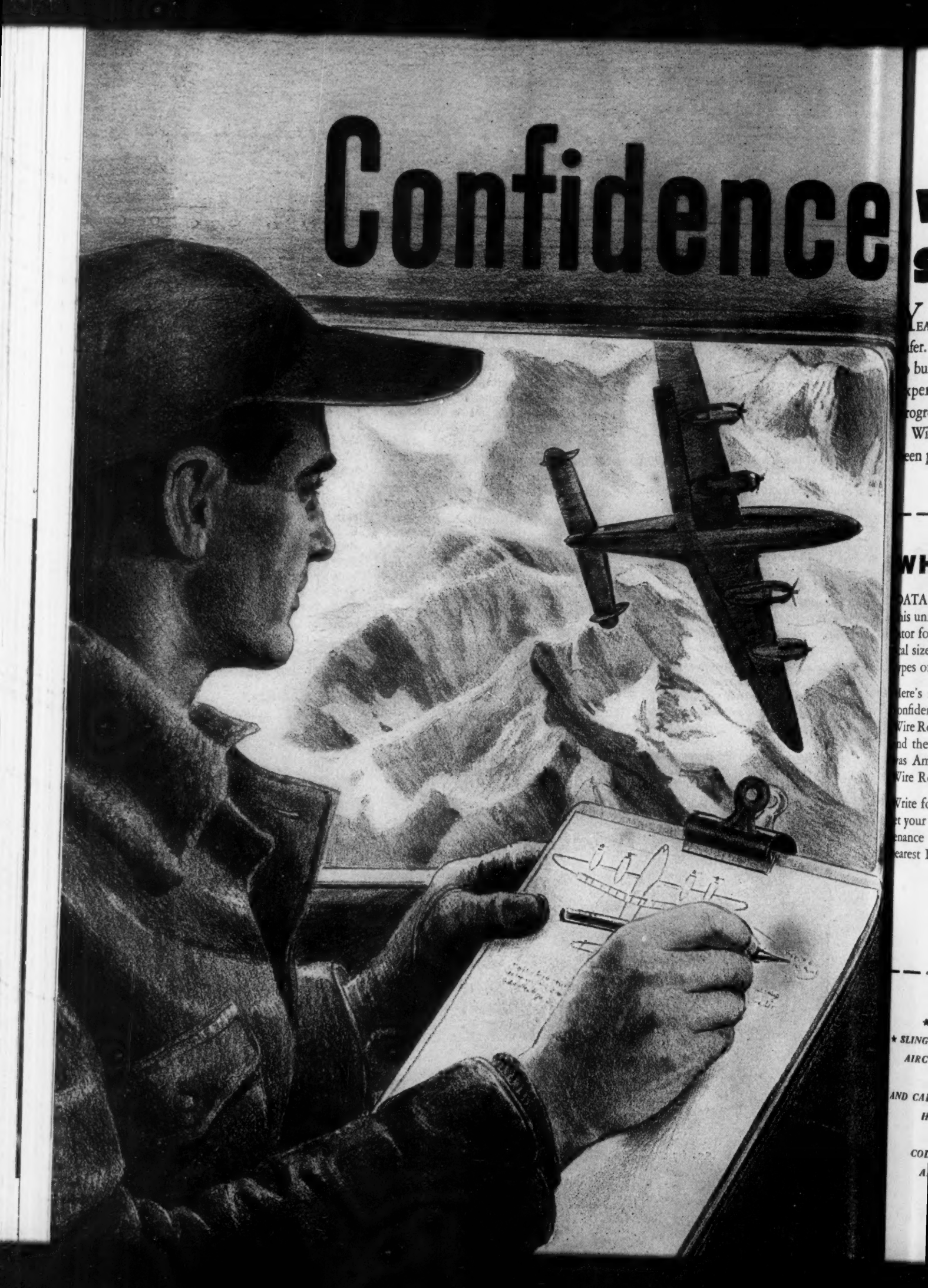
Internal Booster Ram—Main press ram is fitted with a small internal booster ram to effect rapid traverse during the initial part of the draw. Press closing to the work requires only 3 seconds. The double draw is completed in 13 seconds, and 9 seconds are required by the two oper-

Fig. 1—Finished aluminum beer barrel

Fig. 2—Progressive dies are used in the first and second drawing operations on an H-P-M double-action press, which provides independent adjustable main punch, blankholder and die cushion pressures

Fig. 3—From first deep-drawing operations, barrel halves travel by extensive conveyor system to all subsequent processing

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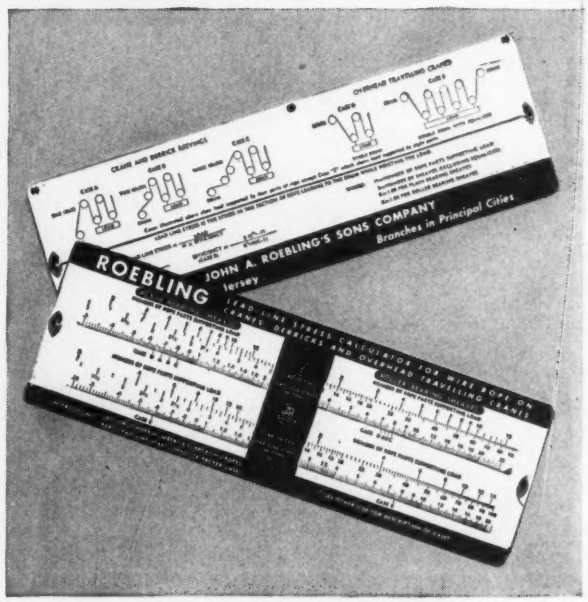

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ROEBLING

A CENTURY OF CONFIDENCE

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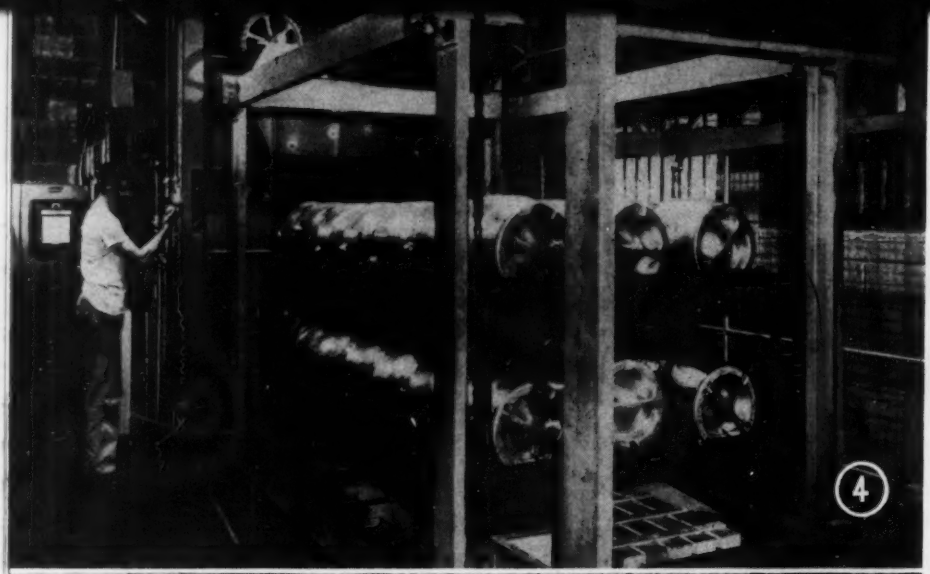
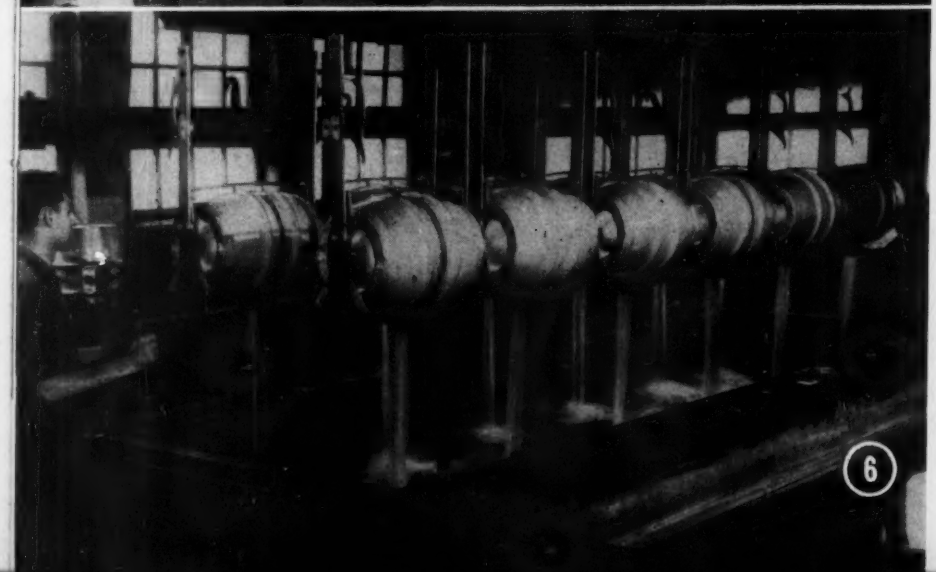




ators for unloading and loading, giving an overall finished piece cycle of just 25 seconds.

Drawn barrel halves travel by gravity roller conveyor to a nearby 300-ton press, which indents the bottom head and sizes the sidewall to the rounded barrel contour. The two halves of the barrel gain identity as "top" or "bottom" in this press operation, where the cup bottom, or barrel end, was returned. The "upper" barrel halves are stamped with an edge ring and a convex center, while the "lower" half has an additional raised rib along the diameter.

Reynolds Pureclad aluminum alloy, which does not discolor or etch, has tough physical characteristics with a low rate of work hardening. At this point in processing, the stock has been worked as far as is practical, and is ready for annealing. Passing by hook-trolley conveyor through vapor degrease, the barrel halves arrive at the heat treating ovens.

Ovens are set up facing each other, but separated by a quench tank below the floor level, surmounted by an elevator structure. The elevator handles a loading rack which accommodates 108 of the barrel pieces. When one rack is loaded and rolled into an oven, another is withdrawn from the opposing oven, dropped by the elevator into the cold water quenching tank, and brought up for unloading and reloading.

Bilge Ring Impressed—Immediately after, while still in soft condition, the parts travel the trolley conveyor to a 200-ton press, where a bilge-ring is impressed around the circumference by means of a segment retracting die. The bilge ring impression completes the forming of "bottoms," but an additional press operation is required on the top halves.

This is performed on an adjacent press, and consists of punching a central hole for the later installation of a Peerless tap, and simultaneously

(*Please turn to Page* 116)

Fig. 4—*Elevator rack loading speeds handling in heat treating and quenching. Here* 108 *barrel-halves are being withdrawn from furnace at left, ready to be quenched in tank below. Another load is undergoing the* 2*-hour annealing treatment in companion furnace at right*

Fig. 5—*Special die, with retracting segments, handles job of forming bilge ring on barrel circumference*

Fig. 6 — *Cleaning, inside and outside, is simplified by a rack which swivels finished barrels to drain solution*

Fig. 3—Cutting bed showing button being cut by blowpipe

Fig. 4—Conventional type oxygen lance is used for preliminary work on large skulls

Fig. 5—Looking down on cutting bed showing mounting bar and blowpipe holder

tons and from 1 to 6 feet thick averaging from 3 to 4 feet thick.

Before the dearth of scrap arose it was considered uneconomical to attempt to reclaim these skulls by the gas cutting process in view of the high reclamation costs as compared to the going market price of scrap. But present-day conditions have brought about a change of attitude.

At a plant in the Great Lakes district several year's accumulation of skulls scattered along the lakefront was estimated at 15,000 tons. This was classified as good scrap provided it could be reclaimed in charging box sizes. After studying the situation a gas cutting installation and the training of the personnel necessary to handle the work were authorized.

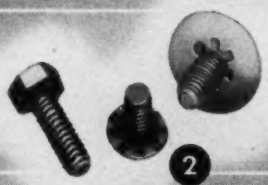
The cutting installation supplied by the Linde Air Products Co., New York, includes a main cutting bed. This consists of a track, 50 feet long, mounted on a structural steel frame about 6 feet high. A cutting machine equipped with a special mounting bar and blowpipe holder is attached to a turntable which is moved along the track to any desired position. By means of the 8-foot mounting bar the blowpipe is swung into the line of cut without any loss in the setup time. A small electrically-driven pump is used to circulate water from a 50-gallon barrel for cooling the blowpipe.

Paralleling the cutting bed and at ground level are steel rails which rest upon cross ties and serve as a table for the skulls. The table is loaded by a yard crane and after the skulls are cut to size the segments are transferred into railroad cars for dispatch to the open-hearth stockhouse.

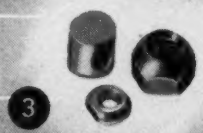
Large skulls varying from 4 to 6 feet thick are first pierced to approximately the center with a conventional-type oxygen lance and then split in half by blasting. By this arrangement thicknesses beyond the range of the blowpipe are eliminated; in addition, limestone and slag are removed which otherwise would have been difficult to cut.

Skulls are cut at a speed which varies from 2 to 6 inches a minute depending upon their thickness and condition. Approximately 300,000 cubic feet of oxygen is used per month for this purpose. The total cost for reclaiming this type scrap averages about $4.50 per ton.

1 **AIRCRAFT PRODUCTS: AN Bolts, Nuts, Screws, Studs, Cotters (including Stainless Cotters)**

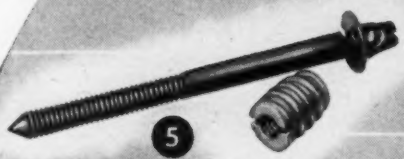


2 **SEMS—Pre-assembled Screw and Lockwasher units**



3 **SPECIALTY NUTS, including cone, barrel, plier, oblong, Tri-Slot, half-round**

4 **BICYCLE PARTS, from axles & saddle bolts to chain-adjust screws**



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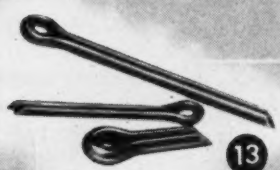

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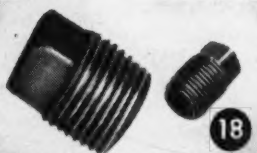

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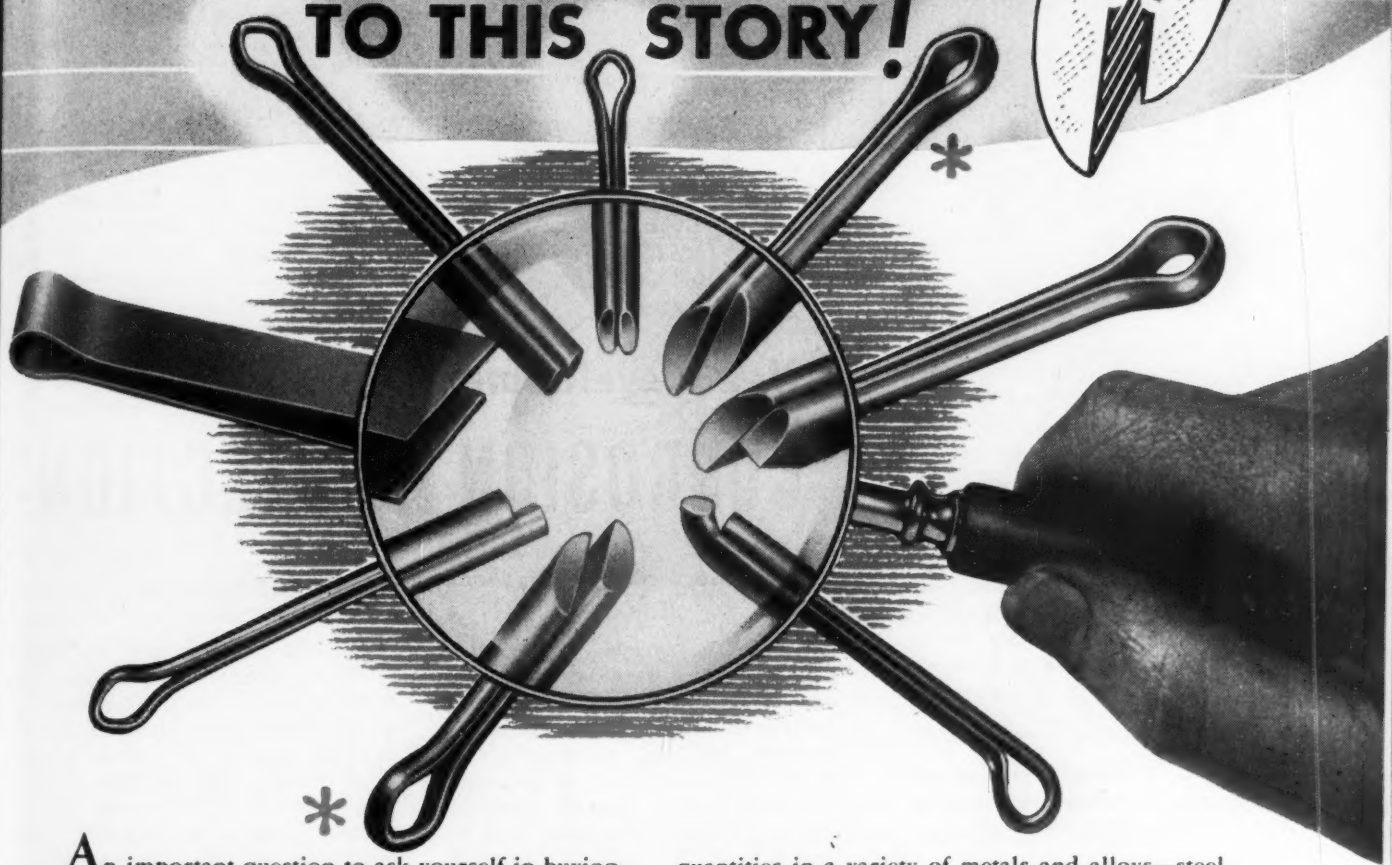

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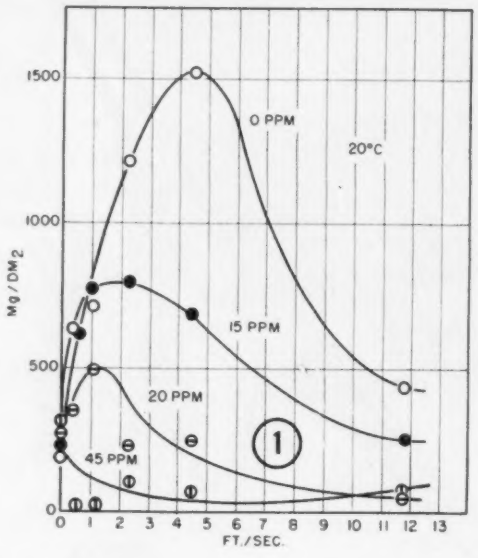


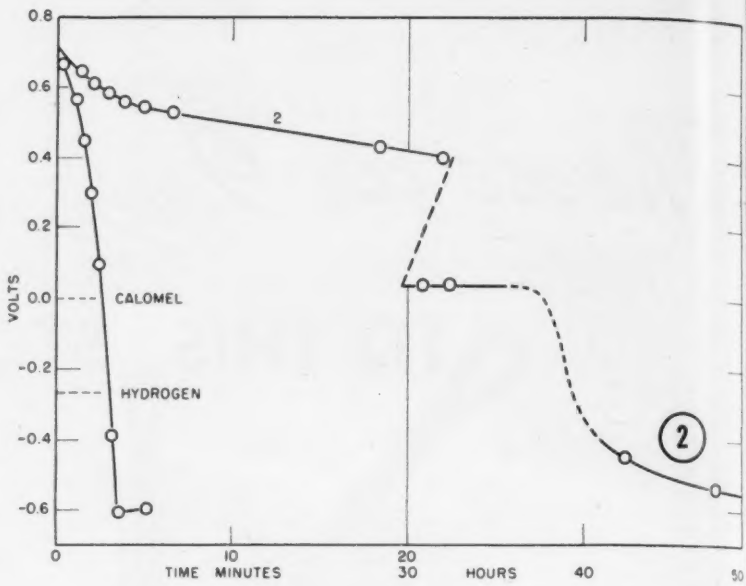
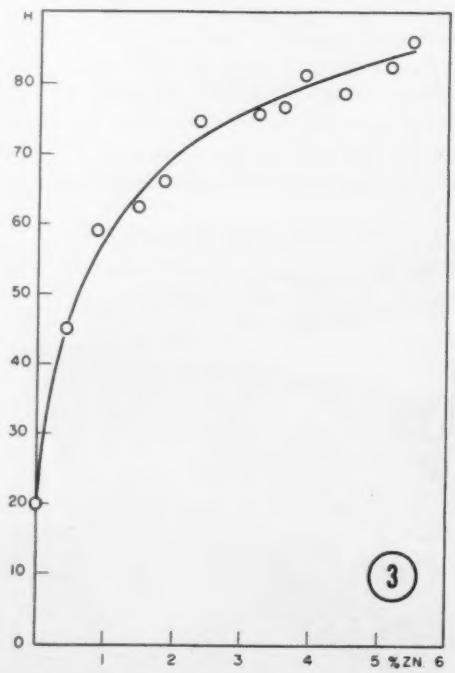


Fig. 1—Effect of rate of flow of water over steel on corrosion. Curves show effect of concentration of inhibitor. Rate of flow at which maximum weight loss occurs decreases with increasing concentration of inhibitor

Fig. 2—Typical time-potential curves for chromium in saturated KCl. Curve 1—No HNO_3 treatment, oxidized 1 hour at 500° C; curve 2—2-3 days in HNO_3, no heating

Fig. 3—Rockwell hardness of magnesium alloys as a function of increasing zinc content



New Developments in

CORROSION PROTECTION

. . . revealed at Electrochemical Society meeting

BALANCED agenda of technical papers in which were described many new developments in corrosion, passivity, and metallurgy of rare metals featured the 93rd meeting of the Electrochemical Society at Columbus, O., April 14-17. A general scientific-technical session presided over by the president of the society, George W. Heise, and symposia on luminescence and electrothermics were also highlights of the meeting.

Inhibition of Steel Corrosion by Sodium Nitrite—At the opening session of the meeting which featured a corrosion symposium, a paper by Morris Cohen, National Research Council, Ottawa, brought out the fact that sodium nitrite is an inhibitor for corrosion of steel in water under both static and motion conditions. The concentration required for inhibition is less in moving solutions than in static solutions.

Thus, at 25°C, and with a very large volume of solution compared to metal, 15 parts per million sodium nitrite inhibited corrosion with stirring, but did not inhibit without stirring. It was reported that 50 parts per million sodium nitrite inhibited corrosion of steel with and without agitation. Also, the experimental tests showed that the concentration required for inhibition increased with temperature increase.

The inhibition action of sodium nitrite is probably due, according to Cohen's studies, to the formation of a tight iron oxide film caused by reaction between the metal and sodium nitrite. The reaction between iron and the nitrite, which was reported to act as an oxidizing agent, was borne out by several of the observations.

It was pointed out that sodium nitrite inhibits corrosion of steel in water in static solutions at about 30 parts per million, and any increase in concentration above this value, up to at least 10,000 parts per million has no further effect. The curve in Fig. 1 shows the effect of rate of flow of solution over steel on the corrosion and also the effect of concentration of inhibitor. Thus it can be seen that the rate of flow at which maximum weight loss occurs, decreases with increasing concentration. It was found that the inhibiting effect of sodium nitrite could be followed and interpreted by voltage measurements.

The rate of breakdown of sodium nitrite is a factor that would have to be considered in any recirculating system in view of the fact that it would require periodic replenishment. This problem was discussed in a companion paper by Cohen and Pyke, National Research Council, Ottawa,

wherein the rate of breakdown and mechanism of nitrite inhibition of steel corrosion were discussed in detail.

Rate of consumption of nitrite was found to be dependent on the rate of steel corrosion. In the temperature range of 20° to 80°C sodium nitrite was found to be quite stable in Ottawa tap water; also, under conditions where the concentration of sodium nitrite was such as to give complete inhibition, the rate of breakdown, in the presence of steel, was not measurable in the time the tests were run.

Therefore, consumption of the nitrite appeared to occur only when the steel was corroding, and the rate of breakdown was proportional to the rate of corrosion. Concentration of nitrite required for inhibition increases with temperature, and in conjunction with this, the rate of nitrite consumption at any particular concentration below inhibition, also increases with increasing temperature.

Passivity—Two papers were presented during the course of the corrosion symposium having to do with passive films on stainless type metals and alloys, and the mechanism of passivity. A study of isolated films from passive stainless steels, was discussed by E. M. Mahla and N. A. Nielsen, Engineering Research Laboratory, E. I. du Pont de Nemours and Co. Inc., Wilmington, Del. The passivity of chromium was discussed in a paper by Norman Hackerman and D. I. Marshall, University of Texas, Austin, Texas, based on work carried out with the Office of Naval Research.

Work described by Mahla and Nielsen was presented as a continuation of earlier studies and offered additional evidence that the passivity of stainless steels results from surface oxide film formation. By the use of a bromine-methanol solution, the authors were able to isolate passive films from electrolytic chromium, ferritic and austenitic stainless steel, and from the alloys Nichrome V and Inconel. The films were very thin and transparent, and were found to be formed on initially film-free (pickled) surface by air exposure, and by passivation treatments in nitric acid and in nitric acid-dichromate solutions.

The authors stated that they believed this work represented the first time oxide films have been isolated from stainless steel specimens known to be passive as a result of air exposure or low temperature passivation treatments. The techniques used should stimulate further research into this general subject of the mechanism of passivity.

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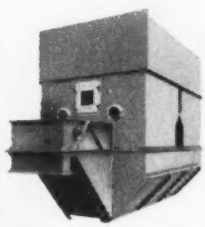

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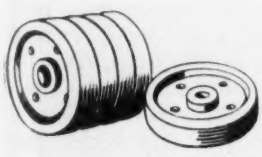

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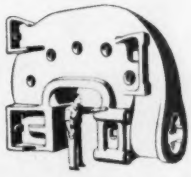

STEEL CASTINGS

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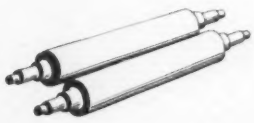

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less steels and related alloys has long been attributed to the presence of invisible surface oxide films, continuous in nature, and of unknown structure and composition. Because no direct experimental evidence has ever been presented to substantiate the presence of such films, other theories to explain passivity have been postulated. One such theory, describing no primary importance to surface oxide films but attempting to explain passivity on the basis of electron sharing, was recently advanced and has aroused much discussion and interest.

A study of passive films on 18-8 stainless steels led to the conclusion that passive films are definitely reaction products of the metal and the passivating medium. Prolonged exposure of stainless steel in nitric acid, or nitric acid containing dichromate at room temperature, or boiling temperature resulted in the formation of oxide films of sufficient thickness to show interference tints. According to Mahla and Nielsen, one of the most important things these tests have shown is that definite passivation conditions are necessary to build passive films of optimum protective power and corrosion resistance. This confirms break-through potential data, previously presented by the authors, which also indicated such an optimum protection. The films of necessity must be very thin, too thin to show interference tints.

Some observations regarding the role oxide films play in passivity of chromium were brought out in the paper on passivity of chromium by Hackerman and Marshall of the University of Texas. Surfaces of chromium, treated with nitric acid and then oxidized in air at various temperatures, were examined by electron diffraction and these results were correlated with results of electrode potential measurements on other samples subjected to the same treatments. The potentials taken at the time of immersion, in saturated potassium chloride, were found to be a function of the temperature of oxidation, with a maximum noble potential corresponding to an invisible oxide film and a minimum corresponding to a surface on which oxide could not be detected.

Samples of spectroscopically pure electrolytic chromium were prepared by plating on copper, and then stripping off the chromium. The investigators stated that they desired to eliminate the base metal from the study because of the porosity of chromium deposits. Typical time-potential curves for these experiments are given in Fig. 2.

These curves were extrapolated to

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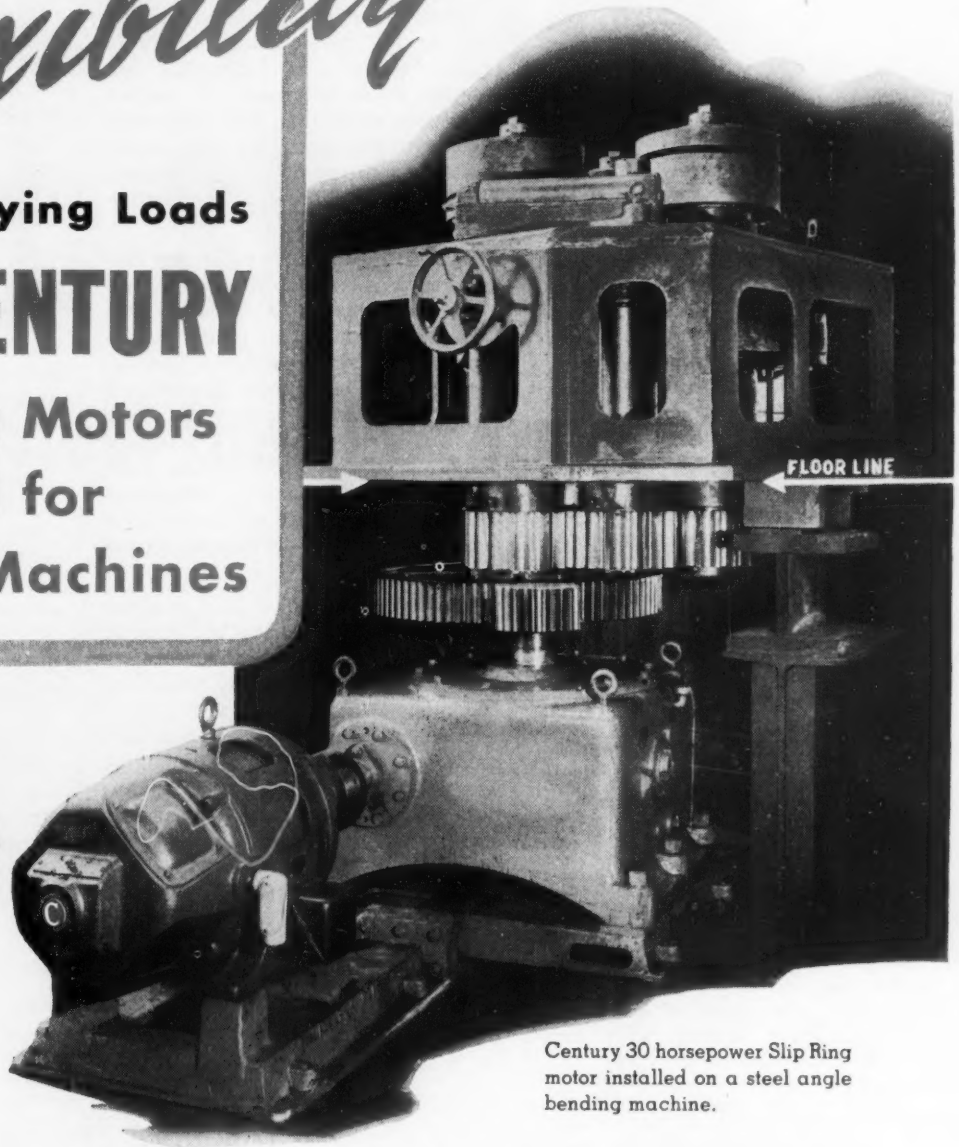

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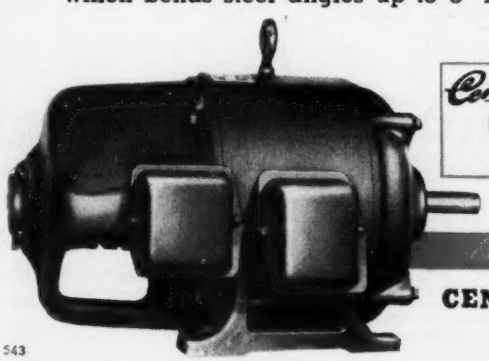

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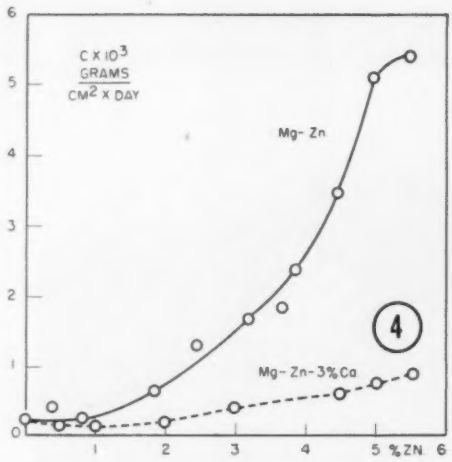

Fig. 4—Two curves showing improvement in corrosion rate of magnesium-zinc alloy by the addition of calcium

zero time to obtain values for the potentials at the time the metal was initially immersed. The fact was brought out that the potential of chromium, treated with nitric acid, is more noble than that of the air-treated metal, and that this difference is greatest when the metal is not subsequently heated.

Corrosion of Magnesium-Zinc-Calcium Alloys — Data were presented before the corrosion symposium by G. C. Kuczynski and F. Schoenfeld showing that the addition of calcium to magnesium-zinc alloys has a marked effect upon the corrosion rate, offsetting almost completely the deleterious effect of zinc. Zinc improves the mechanical properties of magnesium, the hardness of its alloys increasing rapidly with zinc content, as can be seen in Fig. 3.

However, data presented showed that the corrosion rate of magnesium-zinc alloys increased rapidly with increasing zinc content in the range studied which included from 0 to 5.5 per cent zinc. This corrosion rate was sharply reduced by additions of calcium in concentrations from 0.10 to 0.55 per cent.

Lowering of the corrosion rate of magnesium-zinc alloys with small amounts of calcium is best illustrated by comparing the two curves in Fig. 4. The upper curve represents the corrosion rate as a function of zinc content of the binary magnesium-zinc alloy series, and the lower one shows the variation of corrosion rate for the same series of magnesium-zinc alloys with the addition of 0.3 per cent calcium. In the case of 5.5 per cent zinc in magnesium, it was pointed out that the addition of calcium lowers the corrosion rate by more than 600 per cent. However, it was demonstrated that the corrosion rate of pure magnesium is only slightly lowered by additions of calcium.

Chromated Protein Films—Included in the corrosion symposium was a description of a chromated protein film for the protection of metals in mildly corrosive atmospheres. The process, which is reported to protect steel, zinc, aluminum, and brass from corrosion, was described in a paper by Abner Brenner, Grace Riddell, and Robert Seegmiller of the National Bureau of Standards.

Chromate films formed on the surface of zinc, although only a few hundred thousandths of an inch thick, were known to inhibit corrosion of the zinc, probably through the presence of minute amounts of soluble chromate slowly liberated by the action of moisture. If this explanation is correct, it would seem logical that the corrosion resistance could be enchanced by applying a larger quantity of chromate to the metal surface.

The proteins offer a good medium or vehicle for increasing the amount of chromate on the metal surface, as they are basic and readily absorb or combine with chromic acid. Thus, initially the chromated proteins were studied at the National Bureau of Standards to determine their usefulness for protecting zinc surfaces as substitutes for chemical surface treatments. As a result of this work, it was found that they were also of value for protecting other metals, such as aluminum, steel, and brass.

These coatings represent a cheap, expeditious means of protecting metals, especially zinc, iron, brass and aluminum from corrosion during indoor exposure, for example, during storage. They were reported to be superior to direct phosphate or chromate coatings, or to oil films for this purpose, but their life is less than that of suitable paint coatings.

The chromated protein films were more effective on fairly large, regular surfaces than on the sharp edges and corners of small objects such as nuts and bolts, where the film tends to pull away. It was also pointed out that the protein solutions, unlike those used for direct phosphate on chromate treatments, do not become exhausted and require replenishment.

After addition of the chromate, the protein solutions are fairly stable for long periods, and the same solutions and procedures can be used for several metals. One point that was brought out is that plated surfaces should be entirely clean to insure adhesion of the films. Plated articles may be taken from the plating bath, rinsed, and coated without intermediate drying. For applications involving temporary protective coatings, the chromated protein films may be removed by treatment with warm

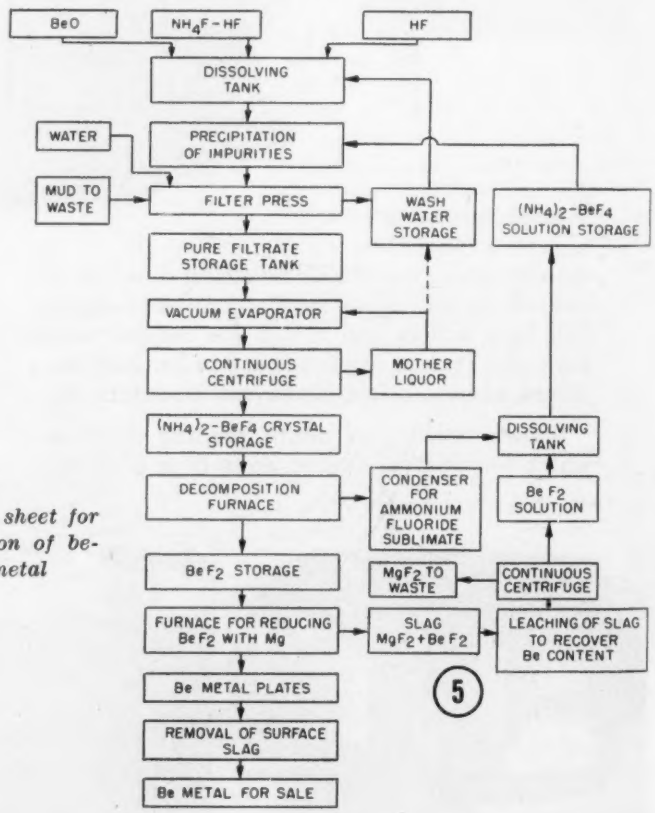

Fig. 5—Flow sheet for the preparation of beryllium metal

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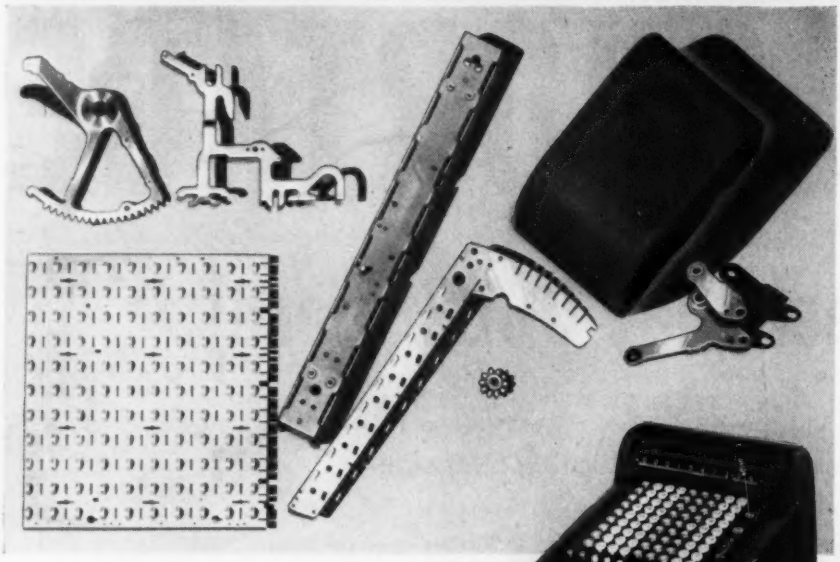

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COLD ROLLED STRIP STEEL SPECIALISTS

sodium carbonate solution.

Electrochemistry of Indium — A symposium on rare metals was another feature of the convention, and the electrochemistry of indium was the subject of a paper by Therald Moeller and B. S. Hopkins, University of Illinois, Urbana, Ill. Although the discovery of indium was announced over 80 years ago, comprehensive investigations of the characteristics of the element and its compounds have been limited, until recently, by the comparative scarcity of the element.

Recent developments which have rendered the metal available in commercial quantities coupled with discoveries of desirable properties possessed by nonferrous alloys containing indium have created new interest in this metal. This is particularly true of its electrochemical characteristics, since much of the technical development has centered in electrodeposition.

Electrodeposition of Lead—F. C. Mathers, Indiana University, and John F. Suttle, University of New Mexico, reported on the electrodeposition of lead from ethylbenzene sulphonate baths. Ethylbenzene is very easily sulphonated and lead ethylbenzenesulphonate is readily soluble; however, investigation of this compound as a new lead plating medium did not give deposits as good as can be obtained from baths already in commercial use. Therefore, it was not recommended for use in commercial lead plating.

Production of Beryllium Metal—As a part of the symposium on rare metals, the production of beryllium metal by reducing beryllium fluoride with magnesium was described in a paper by B. R. F. Kjellgren, Brush Beryllium Co., Cleveland. The solid beryllium plate formed by this process contains some slag in the form of small inclusions. The beryllium metal itself contains the following approximate maximum amounts of impurities in addition to small amounts of residual magnesium: 0.10 per cent aluminum, 0.10 per cent iron, 0.03 per cent silicon, 0.05 per cent copper, 0.05 per cent manganese.

It was reported that the virgin beryllium metal produced in this manner is suitable for alloying and for making castings of pure beryllium. Remelting of the metal in making castings removes the slag inclusions. The metal is preferably remelted in vacuum.

At atmospheric pressure, fluxes with a high beryllium fluoride content are needed to protect the metal against oxidation. Both of these methods reduce the magnesium content in the metal so that the finished cast

SPRINGFIELD

Geared Head LATHES

—are the result of more than 60 years of constant development based upon actual shop experience and are designed and built throughout to meet the exacting demands of modern manufacturing techniques.

No finer lathes exist today. Not only is there constant improvement in design and performance, but every detail of manufacture must conform to the highest precision standards. The gears of the Headstock are typical of these standards. Every gear is forged from the best grade of chrome—Molybdenum steel, heat-treated, and the teeth GROUND to close tolerances under the watchful guidance of experienced craftsmen to eliminate chatter, insure highest speeds and maximum performance.

THE SPRINGFIELD MACHINE TOOL COMPANY

SPRINGFIELD, OHIO, U. S. A.

GENERAL DISTRIBUTORS: BRYANT MACHINERY & ENGINEERING COMPANY, 400 WEST MADISON ST., CHICAGO 6

Exclusive Representatives in All Principal Cities

HOW A BAKER TRUCK CAN CUT A $38.33 Handling Cost to 59¢

Most material handling problems consist principally of two fundamental operations—(1) Transportation, and (2) Piling. The following simple example shows how a handling operation, costing $38.33 by hand methods, can be cut to 59.6¢ by the use of BAKER Fork Trucks and pallets.

THE PROBLEM—To move a pile of 1000 cases a distance of 200 feet and re-pile. This problem is obviously oversimplified. In practice these operations are repeated many times and with many variations—but the ratio of savings remains essentially the same.

COST BY HAND METHODS

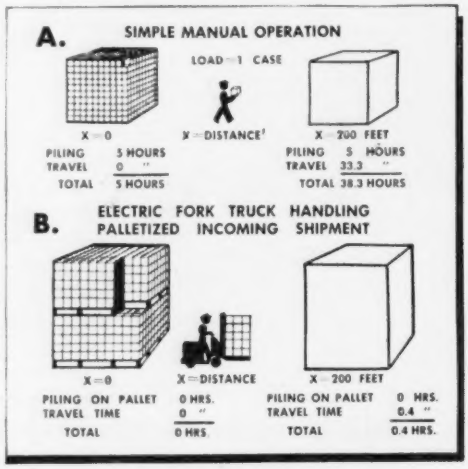
1. Transporting—Practical Load—1 case. Estimated walking speed 200 feet per minute.

Time—1000 round trips, 2000 minutes or 33.33 hrs.
Labor cost at $1.00 per hr., $33.33

2. Piling—Estimated rate—200 cases per hr. Total time—1000 cases—5 hours.

Labor cost at $1.00 per hr., 5.00

TOTAL COST—HAND METHODS . . **$38.33**



COST WITH *BAKER* FORK TRUCK AND PALLETS

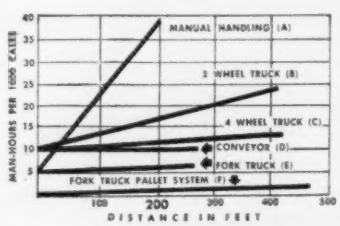
1. Labor Cost—Pallet load—50 cases. Time per round trip with truck 1.2 min. (includes picking up pallet load, travel, tiering, and turning around.)
Total time—20 round trips 24 minutes or .4 hour.

Labor Cost (Operator at $1.00 per hour.) 40

2. Truck Cost—Annual cost—owning and operating Fork Truck and Pallets $980.00
Per hour cost (2000 hours per year.) 49¢.
Cost for .4 hours 196

TOTAL COST—WITH TRUCK . . . . . **.596**

TOTAL SAVINGS—$37.73 or 98.5%



How the cost of Baker Fork Truck-Pallet operation compares with still other handling methods is shown in the chart at left. The starting point of each line indicates man-hours required for piling, and the path of the line shows man-hours for increasing distances. Obviously, the greater the distance, the greater the savings with BAKER Trucks.

Let a Baker Material Handling engineer show you how similar savings can be made in your plant.

BAKER INDUSTRIAL TRUCK DIVISION
of The Baker-Raulang Company
2167 WEST 25th STREET • CLEVELAND, OHIO
In Canada: **Railway and Power Engineering Corporation, Ltd.**

Baker INDUSTRIAL TRUCKS

beryllium contains less than 0.10 per cent.

In carrying out the process, according to the flow sheet shown in Fig. 5, impure grades of beryllium oxide are dissolved in aqueous solutions containing ammonium bifluoride. The solution so formed is purified and crystals of ammonium beryllium fluoride are formed, which are subsequently decomposed into beryllium fluoride by heating. Metallic beryllium is produced by heating the beryllium fluoride at a temperature below the melting point of beryllium with an amount of magnesium less than the stoichiometric quantity. The temperature is then raised to melt the beryllium which is recovered in the form of a solid plate after cooling.

Electric Flash Welding

(*Concluded from Page* 84)

inertia. The result is faster operation which further decreases the overall time required for making a new weld.

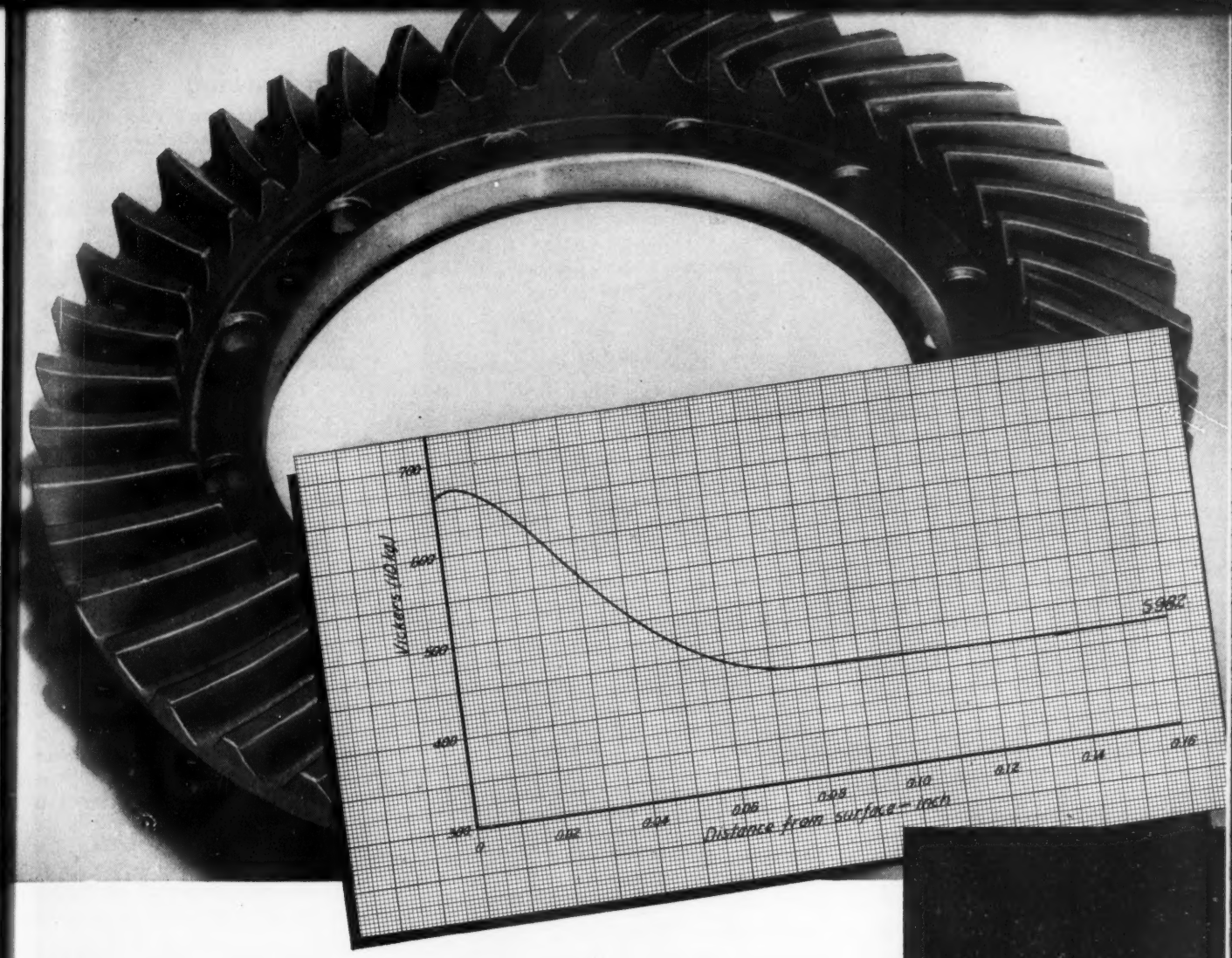
Strip Forging — When the edges of the steel strip have been butted together and heated to a molten state, the hydraulic apparatus forges the strip with a powerful upsetting blow to a maximum of 12,000 pounds per square inch with an adjustable force to meet varying gage requirements.

During the forging operation, all slag and scale is pushed out of the weld with excess metal known as flash in the form of a ridge along the top and the bottom of the weld, Fig. 2A. The flash is shaved off in a special trimmer, Fig. 2B, leaving a continuous strip of homogeneous metal where the two strips of steel have been joined.

Welds are necessary about every minute and a half to two minutes at the rated speed of the line. Welded strip is fed into the looping pit and processed through the pickling tanks before being dried, trimmed, oiled and recoiled for cold reduction on the tandem tin mill.

—o—

Means for engineers and designers to intelligently approach the problem of fracture of metals have been provided in a booklet entitled, "The Fracture of Metals", published by American Welding Society, New York. Booklet is the report to Bureau of Ships, United States Navy which simultaneously is a summary of reviews of literature and interviews with outstanding men in field of metals. It represents a compilation of present knowledge of laws and fundamental mechanism of fracture.



BETTER GEARS, CAMS, SPLINES...FROM

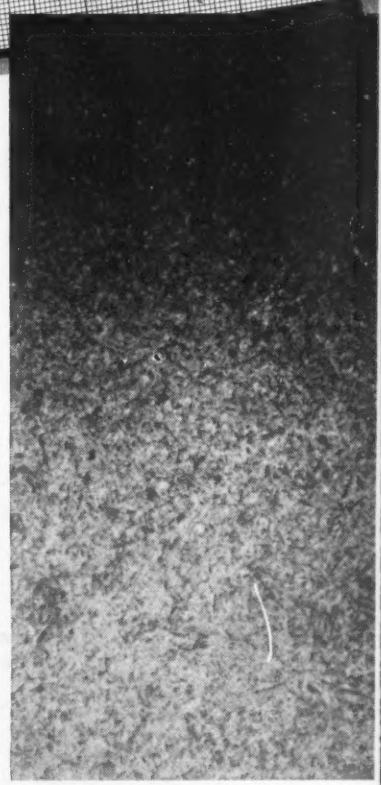
AISI A 6120 CHROMIUM-VANADIUM STEEL

Of particular significance is the curve shown in the accompanying graph, for it represents the gradual decrease in hardness penetration that is one of the notable characteristics of A 6120 Chromium-Vanadium carburized steel.

An example of the excellent light case—free of embrittling carbides—imparted to this steel by a simple direct quench and temper treatment is clearly presented in the photomicrograph.

Unusually strong, hard and wear-resistant, this case and the inherently tough and ductile core are bonded to an exceptional degree by the uniform decrease in carbon penetration from case to core. In service, these superior properties assure longer life and more dependable performance.

Our metallurgists will be glad to work with you in the application of Chromium-Vanadium carburizing steels.



Photomicrograph (100x) and hardness penetration graph of Chromium-Vanadium A 6120 steel, with a light case (0.80–0.85% carbon) in outer .010 inch.

VANADIUM CORPORATION OF AMERICA

420 LEXINGTON AVENUE, NEW YORK 17, N. Y. • DETROIT • CHICAGO • CLEVELAND • PITTSBURGH

RECIRCULATES WATER *without* A PUMP

The Uni-Wash Dust Collector collects dust-laden air, water washes it twice, dries the air and then discharges it *within one compact unit.* The water is continuously recirculated by suction from the exhauster fan . . . no pump to clog and maintain. Another important feature—all dirt is removed from the air before it reaches the fan, thus reducing fan maintenance.

Uni-Wash Dust Collectors are assembled units . . . installation requires the connection of a power line, water source and drain only. These units are available in capacities from 500 to 30,000 CFM. They may be used individually or in combination to meet the requirements of any dust condition.

ENGINEERED SYSTEMS—

Newcomb-Detroit can engineer your complete dust collecting system, then build and install it. They also engineer and build systems requiring spray booths, ovens, bonderite systems, etc. Whatever your needs, when you call on Newcomb-Detroit you are sure of the same thoughtful workmanship that has gone into the thousands of Newcomb installations successfully operating in practically every industry.

Established 1912

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GRAND RAPIDS, MICH.

Main Office and Plant
5741 Russell Street
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Western Sales Office
CHICAGO, Ill.

Deep Drawing

(*Concluded from Page* 90)

imprinting the particular brewery's name on the head. A pneumatic bumper, energized by the press closing, ejects the pieces, and both tops and bottoms are sent to conveyor.

The shell halves are next trimmed to length in a 21-second cycle operation. Then the side bung hole is forged in the halves, and all parts return to vapor degrease.

Heat Treating—With forming completed, the parts go to heat-treat for aging. Held for several hours at the proper temperature, the alloy arrives at the final condition, with long-wearing and good corrosion-resistance characteristics. Finished barrel halves are then stored for assembly.

A gravity conveyor to the floor below "valves" the flow of parts to the assembly operations by means of an elevator section. When three parts roll onto an elevator-gate, a solenoid is contacted and the pieces are released to the conveyor line moving at right angles.

Peerless taps are pressed into the heads of top barrel halves, and welded. The parts pass to a pressure test stand where the weld is proved. Wire brushing removes the aluminum oxide at the weld. The length of both sections is then gaged, and pairs are assembled into barrel form and strapped together for seam welding.

Welding—Still on roller conveyors, the strapped assemblies move on to welding booths, where they are placed in pneumatic holding fixtures and automatically rotated while the joint is welded. The welding operation brings together the forged portions of the two barrel halves to form the side bung hole, with a protruding lip. The design permits the addition of a formed bung plate by welding, without the internal welding bead produced with the older style one-piece, holed plate.

On air motor-rotated welding positioners, the plate is finish welded. Rough and finish-reamed, the bung holes are burnished to size, which also work hardens the bung hole surfaces. By conveyor once more the finished barrels move to a washing operation, with internal spray and drainage to remove chips.

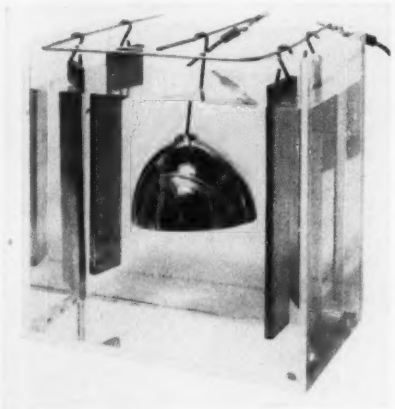
After a submerged pressure test, the barrels move on to the cleaning room. Here they are racked in a swing cradle fixture which submerges the containers bung-hole up, and swivels to withdraw them bung-hole down, for drainage. The racks move through hot and cold rinses, acid and chemical baths.

A final air test is made and the barrels are dried by an air blast.

New Products and Equipment

Lucite Plating Tanks

Electroplating tanks of high temperature lucite, made by Singleton Co., 9823 Lorain Ave., Cleveland, O., are "welded" with a pure weld of the material, thereby affecting none of the essential properties of the plastic. Advantages of the lucite tanks are: Resistance to all acids and alkalies; it is noncontaminating and nondeteriorating; transparency;



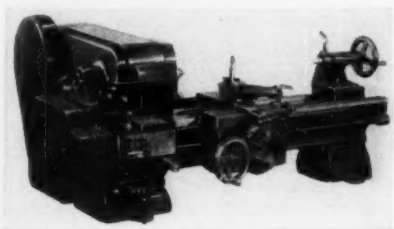
high impact strength; elastic; shatterproof; machineability; and lightweight.

The Singleton-weld process features tested tensile strengths up to 10,000 pounds per square inch. Tanks show no ill effects after continuous exposure to the complete range of plating temperature and solutions.

Check No. 1 on Reply Card for more Details

Bench Lathe

A 10-inch bench lathe with a 1-1/16-inch hole through the spindle and with an integral horizontal motor drive is announced by Sheldon



Machine Co., 4258 North Knox Ave., Chicago 41, Ill. Collet capacity is 3/4-inch or 1 inch with nose type collet chuck.

Features include tapered roller spindle bearings, double walled worm feed apron with power cross feed, and full quick change gear box that gives a thread cutting range of from 4 to 224 threads per inch. The 4-step, V-belt motor drive is designed to take either a 1/3 or 1/2-horsepower motor.

Check No. 2 on Reply Card for more Details

Honing Machine

Parts having inside diameters ranging from ¼ to 4 inches may be honed on the model B-3 honing machine developed by Staple Engineering Co., Box 312, Birmingham, Mich. A machined surface is provided on which work holding fixtures may be mounted. For production work parts are held in a fixture and stroking is by hand.

Spindle drive is by a ½-horsepower motor through a variable speed

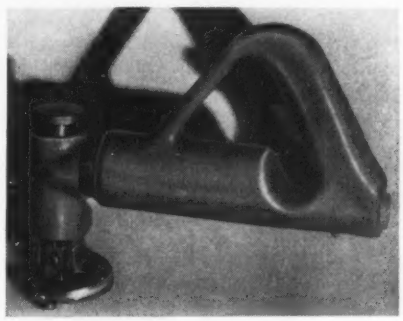
drive. With a 1200 revolutions per minute motor, speeds are available from 300 to 980 revolutions per minute and with a 1750 revolutions per minute motor, from 490 to 1480.

Check No. 3 on Reply Card for more Details

Pneumatic Tools

Less weight, compact size, better balance, quiet operation, less operator fatigue, new governor control and ease of lubrication are features of the Stream-Power line of six pneumatic tools, announced by Buckeye Tools Corp., Dayton, O. Neoprene valve seals, oil bearing end plates, magnesium alloy castings, labyrith seal bearings, stainless high carbon alloys and hilicoil threaded inserts are used in their construction.

Basic tools in the line are: Horizontal grinders with speeds from 3000 to 22,000 revolutions per minute and capacities from ½ to 8 inches in diameter; vertical grinders and sanders with speeds from 3000 to 6000 revolutions per minute, grinding wheel capacities from 4 to 6 inches and sanding pad capacities from 5 to 9 inches; shears (illustrated) with up to 14-



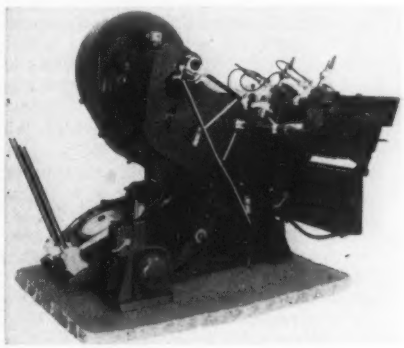
gage maximum capacity; nibblers for up to 20-gage maximum capacity; air wrenches with up to ⅝-inch nut capacities; reversible drills and screwdrivers capable of handling up to a ⅜-inch drill and a ¼-inch screwdriver.

Check No. 4 on Reply Card for more Details

Strip Feed Press

An automatic strip feed press, designed for medium and high speed can making production, is available from Lima-Hamilton Corp.'s Hooven, Owens, Rentschler Co., 60 East 42nd St., New York 17, N. Y. The press, called the Hamilton-Kruse model No. 301, is offered with either single or double dies or multiple die work with special slides.

Speeds as high as 225 strokes per minute are possible. It has a 25-



ton capacity and a friction type clutch. An electric timer assures stopping the press at the top of the stroke. Operation of any of the safety mechanism automatically disengages the clutch. Minimum and maximum strokes are 2½ and 5 inches, respectively. Power is furnished by a

5 horsepower motor, mounted on base.

Check No. 5 on Reply Card for more Details

Machine Tools

Boring, turning, chamfering, grooving, facing or flycutting operations may be performed separately or in any desired combination on the model 421 and 422 Bore-Matic machines, developed by Heald Machine Co., Worcester 6, Mass., to handle heavy work. Model 421 is a single and model 422 a double end model. Features include: Highly productive cycles obtained through increased speed of cycle elements, including table traverse and boring head speeds; adequate power for roughing; permanently lubricated boring heads; and uniform hydraulic feeds.

Valve and core plate construction of hydraulic system requires a minimum of piping. Power unit is separated from machine base, but easily accessible for maintenance. Provision has been made on main control panel for installation of units for operation of hydraulic fixtures, cross slides, chucks, etc. Settings make available different rates of "in" and "out" feeds for two-way boring.

Both models have a bridge width of 31-1/4 inches, maximum table travel of 20 inches, a table pad measuring 15 x 27 inches, a 21-5/8-inch table and an 8-inch distance from top of table to top of bridges.

Check No. 6 on Reply Card for more Details

Polishing Machine

Electrically powered, a new automatic buffing polishing machine, designed by Vanott Machine Corp., 230 Colgate Ave., Buffalo, N. Y., is capable of finishing 800 parts in 1 hour. It will finish small objects with diameters up to 3 inches or up to 7 inches if only four of its eight spindles are used.

Spindles are on a revolving head which indexes at predetermined speeds. Each has a chuck, or a gripping device, individually designed for each shape to be buffed or polished.

Check No. 7 on Reply Card for more Details

Fluorescent Magnifier

Inspection, assembly and machining operations may be more accurate and easier with the combination of cool, glare-free light and optically correct magnification supplied by the minature fluorescent magnifier made by Stocker & Yale, 48 Birch St., Marblehead, Mass. Illumination of 350 foot-candles lights the object from widely divergent angles. Object is viewed through a 2 power lens mounted in the reflector between two 5-inch fluorescent lamps.

As point of observation is behind light source, internal surfaces of holes and cavities can easily be seen. Lamp surface temperature of 115°F allows close work with comfort. Fixture is available with easy adjusting supporting bracket for machine and bench installation. Choice of white

IT is fast, simple, and accurate . . . completely operated from one control position. This new R. D. Wood Company tube tester has a wide range . . . from ¼" to 3½" nominal outside diameter, at pressures selected and preset from 750 to 3000 pounds. Average 3½-inch diameter tubes of 26-foot length are tested at a rate of 80 an hour.

The hydraulic tube tester is constructed of heavy steel. It is designed to permit the testing of tubes from 10 to 26 feet long. In operation, the tube is automatically placed into testing position and firmly held between a fixed and a movable head by clamping carriages on the main frame. The movable head forces the tube to be tested against the stationary head and effectively seals both ends. Water under pressure is then forced in through the movable head into the tube, while the gauges at the operating position keep the operator informed on pressures applied. Upon completion of the test the tube is automatically ejected.

This R. D. Wood hydraulic tube tester is completely self-contained . . . all pumps and associated equipment are housed in the base. Also, included is a system for cleaning and re-using water which drains from tested tube at the end of the operating cycle.

Send today for descriptive literature, write R. D. Wood Company, Public Ledger Building, Independence Square, Philadelphia 5, Pa.

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R. D. Wood Company
EST. 1803

A BAR READY FOR FORGING *every 10 seconds!*

With Ajax-Northrup heat, bars are heated uniformly to a preferred temperature or with a tapered heating gradient as required for forging.

THE AJAX-NORTHRUP SCALE-FREE WAY

Just as the speed of a conveyor controls a modern assembly line, so does this Ajax-Northrup "Forge of the Future" control the efficiency of an entire forging operation. Located right at the forging machine, the chutes of the heater are loaded with cold 1 ½" x 1 ½" x 15" steel slugs. These slugs are automatically fed through the induction coils, and are ejected with split-second timing at exact temperature.

Induction heating is so fast, there's little time for scale to form. That means longer die life, greater accuracy, and cleaner shops. This accurately controlled, clean heat adds up to increased output at lower overall costs.

This modern heater is only one example of the way Ajax-Northrup can speed up and save in your heating, brazing, hardening, melting, and similar operations. You can achieve practically any heating pattern in any size part. Ask for idea-packed Bulletin 27.

95

AJAX NORTHRUP
SINCE 1916

AJAX ELECTROTHERMIC CORP.
AJAX PARK, TRENTON 5, N. J.

ASSOCIATE COMPANIES
AJAX METAL COMPANY • AJAX ELECTRIC CO., INC.
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AJAX

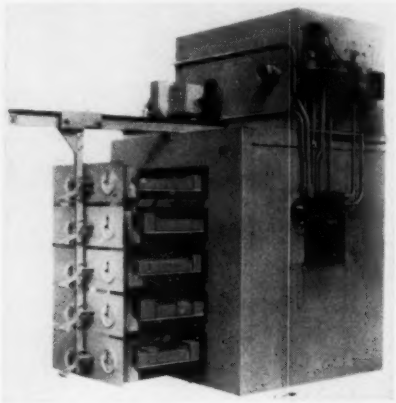
HIGH-FREQUENCY HEATING-MELTING

or daylight lamps is given. Operation is from 115 volt, 60 cycle alternating current, with other ratings to be offered.

Check No. 8 on Reply Card for more Details

Drawer Type Oven

Self-contained and factory wired, the improved all purpose drawer type oven, designed by Despatch Oven Co., 619 S. E. 8th St., Minneapolis, Minn., is much lower and more compact. Unit fan and heater are enclosed in



an insulated box which mounts on top of oven body. A vertical support bar does not interfere with loading from any angle.

Overhead rail suspension of heavy cast iron rollers permits smooth drawer action. Rear plug on drawer seals the oven against heat loss when drawers are open. Twenty-four models of three, four or five drawer types, gas, oil or electric fired and with forced convection, are made. Drawers range from 30 x 36 inches up to 48 x 72 inches, with depths from 8 to 18 inches.

Check No. 9 on Reply Card for more Details

Hand Dump Truck

Palmer-Shile Co., 16025 Fullerton Ave., Detroit 27, Mich., is manufacturing a hand dump truck designed to catch turnings from screw machines, but suited for holding scrap

and other materials. It is constructed of heavy sheet steel, reinforced with a flange along the top edge. A ⅝-inch round iron handle is welded to the body.

Top of truck measures 25¾ x 45 inches; the bottom, 25¾ x 27 inches. Depth is 17½-inches and overall height is 23 inches, but it may be furnished higher or lower to order. It is equipped with two 8-inch steel wheels and two 4-inch metal swivel wheels and has a capacity of about ½-cubic yard.

Check No. 10 on Reply Card for more Details

Fork Truck Shovel

Shock and strain to the upright assembly when the load is discharged are minimized by a pneumatic snubber on the improved fork shovel, announced by Tructractor Division, Clark Equipment Co., Battle Creek,

Mich. Shovel has a 3-point suspension with a roller cam lock and single point hook, permitting release of any load with a 15-pound pull.

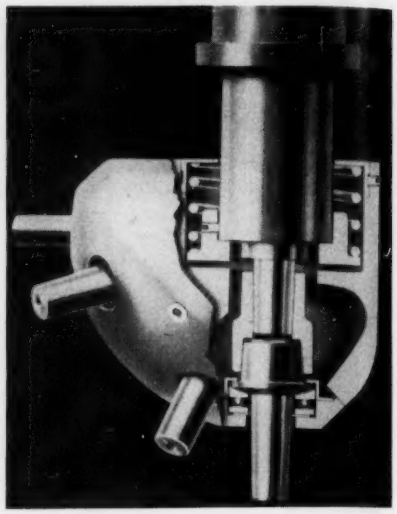
Built of ¼-inch steel plate, the shovel has a 6-inch-wide blade of hardened steel and flame hardened edge, welded to the bucket. Unit is for fork truck use in confined areas and is interchangeable with forks and all other attachments mounted directly to standard fork bars on Clark fork trucks.

Check No. 11 on Reply Card for more Details

Drill Turret

An automatically aligning drill press turret, made by Howe & Fant Inc., 521 Flaxhill Rd., South Norwalk, Conn., is so designed that its six spindles are automatically centered and aligned by the drill press spindle. Spindles are mounted on floating bearings so that they are free to move laterally and angularly as well as to rotate. As the tapered driving unit, attached to drill press spindle, engages the mating taper of the unit's spindle, it centers and aligns that spindle and locks it in position until the drilling is completed.

Mating tapers are hardened and ground to a mirror finish. They will turn a ½-inch drill through the hardest material without a lead hole. Turret, called the Lign-O-Matic is

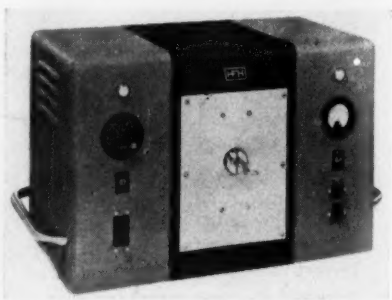


simple to attach and detach and does not damage the drill press. Tool changes are made by raising the drill press lever and indexing the turret to another station.

Check No. 12 on Reply Card for more Details

Electronic Generator

Applicable to hardening, annealing and heating for forging small units, the new electronic generator for production induction heating, developed by High Frequency Heating Co., 143 Glen Park Ave., Gary, Ind., is designed so that copper and brass may



be heated to desired degrees with only a single turn work coil. High frequency power is generated by a single ended Colpitts oscillator, utilizing high efficiency class C operation. Three compartments house parts and components.

Cabinet is of heavy gage spot welded steel, deeply copper plated. Work coil connections are mounted on front of heat resisting panel. Water cooling of work coil is provided. Power output is 1200 watts, frequency is 400 kilocycles. Remov-

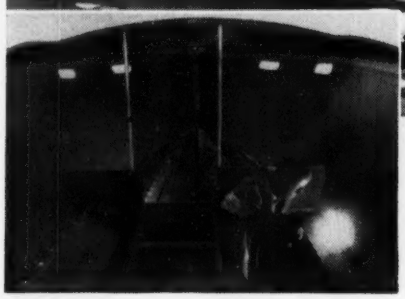
Steelcraft BOATS · · · made

STRONGER, SAFER, at LOWER COST

with J&L OTISCOLOY

CORROSION-RESISTANT HIGH-TENSILE STEEL

J&L STEEL



WHOLE SIDES OF THE SEAWORTHY 26-FT. CRUISERS ARE CUT FROM SINGLE SHEETS OF OTISCOLOY.

Famous Boat Builder Shatters Tradition with Otiscoloy Steel Construction

By building standard models, employing mass production-line methods, and using J&L Otiscoloy High-Tensile Steel, Churchward & Co., Inc., of West Haven, Conn.—the "Ford of the waterways"—offers a type of construction to the small boat field that heretofore has only been available in large naval and commercial craft and in custom-built yachts.

Because Otiscoloy is highly resistant to abrasion and corrosion—and 35% to 40% stronger than mild steel—Steelcraft obtains *strength* with *light weight*, *safety* and *life-time durability* at surprisingly *low cost*.

Efficient, beautiful streamlining is easily accomplished, because of the excellent workability and ripple-free flatness of Otiscoloy sheets.

Assembly of Steelcraft cruisers is facilitated because welding is fast and may be done by any process.

Many other fabricators are finding J&L Otiscoloy equally advantageous. It reduces expensive dead-weight. It can be formed hot or cold, welded, forged, flame-cut or otherwise worked by standard methods. Its ability to hold paint and to withstand wear, abrasion and corrosive elements is remarkably high.

If you are not acquainted with this modern steel, call your nearest J&L sales office, or write us today for a copy of "Otiscoloy High-Tensile Steel." This booklet contains data on properties, weights, elements of sections and forms available. The coupon is for your convenience.

Jones & Laughlin Steel Corporation
404 Jones & Laughlin Building
Pittsburgh 19, Pa.

Please send at once a copy of your booklet: "Otiscoloy High-Tensile Steel."

NAME_____

TITLE_____

COMPANY_____

ADDRESS_____

_____

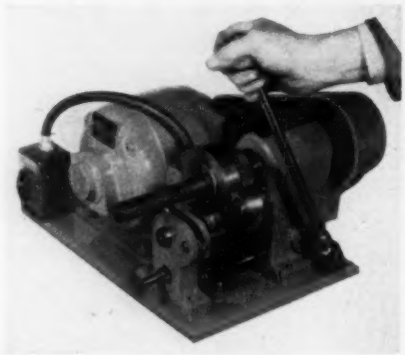
JONES & LAUGHLIN STEEL CORPORATION

able panels are interlocked so that high voltages are shut off when they are removed.

Check No. 13 on Reply Card for more Details

Tube Deburring Machine

Inside and outside chamfering, facing, center drilling, flaring, reaming, etc., as well as deburring, may



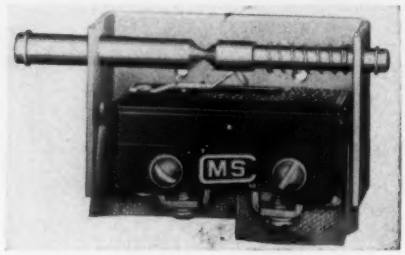
be performed on the semiautomatic tube deburring machine manufactured by Pines Engineering Co., Aurora, Ill. Its design embodies a mechanical chuck and chuck closing mechanism which positively holds any length tube, pipe or rod up to 2 inches in diameter. Controlled clamping pressure prevents distortion and marring of the piece.

Operations may be performed at rate of 500 to 1000 ends per hour, exact production being determined by size and length of stock cut taken and type of material. Change of cutting tools to perform different operations requires about 1 minute.

Check No. 14 on Reply Card for more Details

Interlock Switch

Automatic cutting off of the power circuit is attained in high frequency radio, induction heating equipment



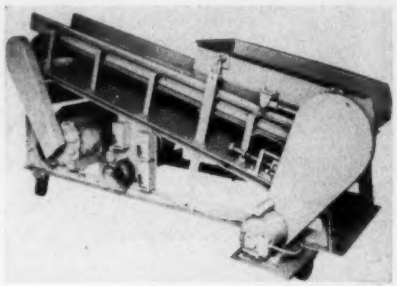
and electronic controls by the interlock door switch announced by Micro Switch, Freeport, Ill. Although opening the door shuts off the power, a service man can close the circuit for servicing by manually moving the actuator without the hazard of forgetting, as the next door closing returns the actuator to its normal position.

Provision is made for mounting on two faces. Actuator rod has a deep threaded hole for acceptance of an adjustable length actuating pin or button. The 1AC1 switch is single-pole double throw.

Check No. 15 on Reply Card for more Details

Magnetic Separator

For handling miscellaneous scrap materials, the Memco high power complete magnetic pulley type separator, made by Magnetic Engineering & Mfg. Co., Clifton, N. J., has



additional application in the foundry industry for reclaiming molding and core sand. Separator, equipped

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TIN PLATE • BARS • SHAPES
WIRE PRODUCTS • ALLOYS
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Tri-Boro Steel Supply Co., Inc.

The stamina that enables the fistic champion to win and hold his title comes from years of rugged physical conditioning. In the ring there is no lost motion in the champion's action . . . he avoids the more punishing blows . . . conserving his stamina for a whirlwind finish.

Illinois Gears likewise have an abundance of stamina; built into them through the experience of years in the production of finer gears. The gear blanks are critically inspected to verify that the steel meets specifications. Inspection follows every stage of production. The proper heat treatment gives the gears their optimum toughness for their specific job. The accuracy of Illinois Gears minimizes punishment . . . they function smoothly and silently through long periods of service.

Gears for Every Purpose

ILLINOIS GEAR & MACHINE COMPANY

CHICAGO 35, ILLINOIS

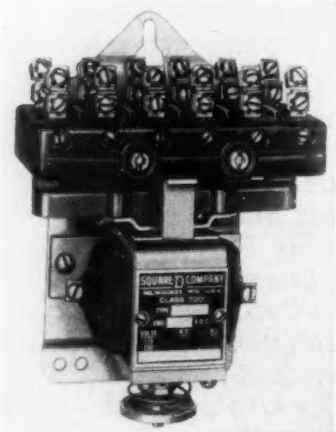
with a reciprocating mechanical combination feeder and screen, is built in a variety of sizes with belt widths from 12 to 60 inches.

Material to be separated is shoveled or fed into the shaking screen, the larger particles passing off of the end of the screen. Finer material passes through screen openings onto conveyor belt, where it is carried up and over the magnetic head pulley. Machine illustrated is portable and is supplied with unit motor drive and motor generator set. For light duty a permanent alnico magnetic pulley may be furnished.

Check No. 16 on Reply Card for more Details

Multiple Relays

Long mechanical life through straight line vertical solenoid action which minimizes effects of shock and vibration and possibility of contacts being closed accidentally is a feature of the two new direct current magnetic multipole relays, announced by Square D Co., 4041 North Richards St., Milwaukee 12, Wis. They utilize double-break, silver-to-silver contacts which are readily converted from normally open to normally closed without additional parts or tools.



Relays are steel panel mounted and insulated to permit direct mounting on a grounded metal panel. All terminals are accessible from the front and have two wiring clips to accommodate multiple connections.

Check No. 17 on Reply Card for more Details

Portable Power Source

Any speed from 1600 to 2600 revolutions per minute may be obtained from the Multi-Tool, a light, portable power source introduced by Continental Motors Corp., Detroit, Mich. Accessory equipment will widen the speed range. Speeds remain constant regardless of load. Power is delivered either direct from the main shaft or through an automatic transmission which is optional.

The 50-pound unit, built with carrying holes at both ends, is capable of driving a variety of machines within its 1½-horsepower. Mounted on a utility base, it may be set on floor or ground and belted to the machine it is to run.

Check No. 18 on Reply Card for more Details

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ELECTRICAL CONTACT CLEANER: Dirt and waste that accumulates in commutators, slip rings, controllers, switches, etc., is safely dissolved by the liquid Rotol, made by Rotol Chemical Co., Elmhurst, L. I., N. Y. Fluid is noninflammable, gives off no poisonous fumes and leaves no residue.

Check No. 19 on Reply Card for more Details

HEAVY DUTY TIME SWITCHES: Improvement in these switches, made by Sangamo Electric Co., Springfield, Ill., include fully enclosed hysteresis-synchronous, low speed motors with replaceable silicone lubricated bearing system. Closer time limits between settings permit a wider range of applications.

Check No. 20 on Reply Card for more Details

PNEUMATIC SCALING HAMMER: Model M-205 and M-205 high speed scaling hammers, made by Master Pneumatic Tool Co. Inc., Orwell, O., will remove splatter and excess metal after welding, peining, etc., as well as removing rust, scale and paint. Other applications include core breaking, plaster removal, stone cutting, etc.

Check No. 21 on Reply Card for more Details

MACHINABLE WELD ELECTRODES: Machinable welds in cast iron, joining cast iron and steel, salvaging defective new castings, etc., are possible with the Ni-Rod electrode introduced by International Nickel Co., New York 5, N. Y. Diameters of 1/8, 5/32 and 3/16-inch are offered.

Check No. 22 on Reply Card for more Details

DIAMOND DRESSING TOOL: Developed by D & T Inc., Detroit 3, Mich., the C-7X Mighty Mite diamond dressing tool contains seven diamonds. Wheels of large diameter and broad face may be dressed with this tool which has a shank diameter of 7/16-inch. Diamonds are set in Colmonoy metal.

Check No. 23 on Reply Card for more Details

DOUBLE-END COUNTERBORE: With cutting edges at two ends, the Plan-Co double end counterbore, made by Plan-O-Mill Corp., Hazel Park 20, Mich., is offered in a range of sizes in high speed steel or with tungsten carbide inserts. Both single and multidiameter styles are offered, with or without pilots and with collet or sleeve holders.

Check No. 24 on Reply Card for more Details

WEAR PARTS WITH CARBIDE INSERTS: Parts of this nature are being manufactured by Super Tool Co., Detroit 13, Mich. Typical parts are stapler clinching die and associated solid carbide wire guide. Parts of any size are made to order.

Check No. 25 on Reply Card for more Details

DRILL FOR HIGH SPEED STEEL: Steel registering as high as rockwell C 66 may be drilled by the new carbide drill announced by National Tool Salvage Co., Detroit 10, Mich. It incorporates a special grind which results in faster and less heat.

Check No. 26 on Reply Card for more Details

NONFOAM CUTTING OIL: Metal-Clean Solvent Corp., 1935 North Paulina St., Chicago, Ill., is introducing its No. 16 cutting fluid which incorporates super-fatted materials. It offers maximum cooling, lubrication, wetting and rust prevention. Use may be with all types of ferrous and nonferrous metals and carbide tools.

Check No. 27 on Reply Card for more Details

MICROFILM READER: Easy reading of 16 mm microfilm and copying of the film on photographic paper in less than 2 minutes without a darkroom are advantages of the microfilm reader developed by American Optical Co., Buffalo, N. Y. A 12¼-inch square projection screen is provided on the reader which requires floor space of 16 x 23 inches.

Check No. 28 on Reply Card for more Details

HEAT-HARDENING ENAMEL: Suited for factory finishing of aluminum for outside exposure, a synthetic heat-hardening low gloss enamel, made by Sherwin-Williams Co., Cleveland, O. Aluminum may be roller coated with primer and baked, then fabricated and sprayed with the finish bake coat, or both primer and finish coat may be applied.

Check No. 29 on Reply Card for more Details

FOR MORE INFORMATION
on the new products and equipment in this section, fill in a card. It will receive prompt attention.

Market Summary

SUPPLY—With steel shipments showing effects of the recent coal mining stoppage, metalworking companies are pressing with renewed vigor in an effort to procure as much of the available supply as possible. However, no near-term supply improvement is in view in carbon steel products, for producers not only are reducing third quarter shipment quotas to offset production losses incurred during last winter's industrial gas curtailments and the more recent coal mining disruption but they soon will experience additional production cutbacks as result of vacations in mills, and possibly a coal miners' strike.

Meanwhile, the prospect of additional allocations of steel for certain industries and for defense purposes add uncertainties to the supply picture. Some of the pressure on supply could conceivably be lifted if a strike in the automobile industry continues sufficiently long that the strike-affected company and its suppliers would temporarily curtail acceptance of steel shipments. Demand for electrical sheets is expected to ease in late summer as result of production cutbacks in fractional horsepower motor manufacture, but outlook for alloy and some stainless products continues strong with deliveries extended into early fall.

PRICES—Further progress is being made toward downward adjustment of steel prices, with various important producers following the lead of U. S. Steel Corp., although not in all cases on the same products or to the same extent. Other producers have schedules under review, although some, including certain smaller independents, indicate they may take no action now. Other events on the price front include the leading independent's naming of Sparrows Point, Md., as an eastern base on cold carbon sheets, while a small independent is adopting an f.o.b. mill basis for quoting low carbon cold-rolled strip steel and also is increasing cold-rolled stainless 50c per 100 lb.

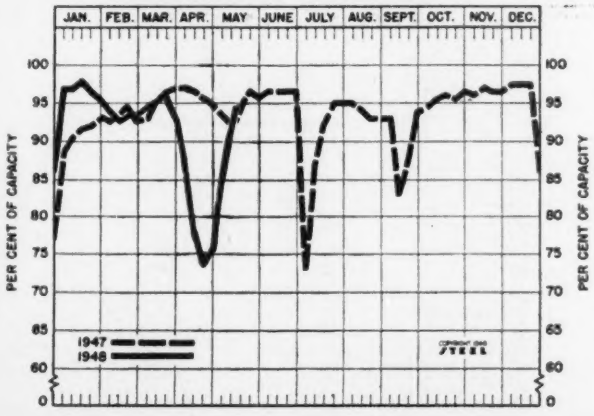
WAREHOUSES—Recent increase in freight rates partially cancels out benefits of mill reductions to warehouse steel prices. Warehouses' job of revising prices has been complicated by the fact freight rates and mill prices changed at about the same time, with the lack of uniformity in mill announcements of price changes making jobbers' price revision task additionally difficult.

PRICE COMPOSITES—STEEL's arithmetical price composite for steelmaking pig iron rose last week to $39.21 from $39.18 for the preceding week and compared with $32.49 for the like week a year ago. Composites held unchanged last week and compared with those for the like 1947 week at $80.27 and $69.82 on finished steel, $68.62 and $52.10 on semifinished steel, and $40.67 and $29.42 on steelmaking scrap.

SCRAP—Reflecting the recent surge in ordering of alloy and stainless steels and the addition of electric furnace capacity by one independent producer, demand for electric furnace scrap has strengthened, with buyers finding it necessary to go farther afield for material. In contrast to the recent good flow of scrap, a noticeable decline occurred last week in open-hearth grades, possibly the result of recent temporary production curtailments at automotive plants. Because foundries lack coke and pig iron they have eased their demand for scrap.

INGOT PRODUCTION—Steelmaking operations rose 2½ points further last week to 94.5 per cent of capacity, equivalent to production of about 1,700,000 net tons of ingots and castings. This is the highest rate attained since mid-March. Steel ingot production rate rose 13 points to 104 per cent in Cincinnati, 11½ points to 97.5 per cent in Wheeling, 6 points to 93.5 per cent in Chicago, 5½ points to 93 per cent in Buffalo, 2½ points to 96 per cent in Cleveland, and 2 points to 88 per cent in eastern Pennsylvania.

STEELWORKS OPERATIONS



DISTRICT STEEL RATES

Percentage of Ingot Capacity engaged in Leading Districts

	Week Ended May 15	Change	Same Week 1947	Same Week 1946
Pittsburgh	95.5	None	102	40
Chicago	93.5	+ 6	89	45.5
Eastern Pa.	88	+ 2	91.5	36
Youngstown	103	None	93	43
Wheeling	97.5	+11.5	93.5	72
Cleveland	96	+ 2.5	91	77.5
Buffalo	93	+ 5.5	86	49
Birmingham	100	None	99	44
New England	78	— 3	95	75
Cincinnati	104	+13	89	84
St. Louis	78	—11.5	68.5	44.5
Detroit	100	None	90	84
Estimated national rate	94.5	+ 2.5	94.5	49

Based on weekly steelmaking capacity of 1,802,476 net tons for 1948; 1,749,928 tons for 1947; 1,762,381 tons for 1946.

COMPOSITE MARKET AVERAGES

Arithmetical Price Composites*

	May 15	May 8	Month Ago Apr. 1948	Year Ago May 1947	5 Years Ago May 1943
Finished Steel	$80.27	$80.27	$81.14	$69.82	$56.73
Semifinished Steel	68.62	68.62	68.72	52.10	36.00
Steelmaking Pig Iron	39.21	39.18	39.21	32.49	23.00
Steelmaking Scrap	40.67	40.67	40.41	29.75	19.17

FINISHED STEEL WEIGHTED COMPOSITE†

Apr. 1948	3.57975¢
Mar. 1948	3.57435¢
Apr. 1947	3.12077¢
Apr. 1943	2.42785¢

***STRAIGHT ARITHMETICAL COMPOSITES:** Computed from average industry-wide base prices on Finished Carbon Steel (hot-rolled sheets, cold-rolled sheets, cold-rolled strip, hot-rolled bars, plates, structural shapes, basic wire, standard nails, tin plate, standard and line pipe), on Semifinished Carbon Steel (re-rolling billets and slabs, sheet bars, skelp, and wire rods), on Basic Pig Iron (at eight leading basing points), and on Steelworks Scrap (No. 1 heavy melting grade at Pittsburgh, Chicago and eastern Pennsylvania). Steel arithmetical composite, dollars per net ton; pig iron and scrap, gross ton.

†**FINISHED STEEL WEIGHTED COMPOSITE:** Computed in cents per pound, base prices, weighted by actual monthly shipments of following products, representing 82 per cent of total steel shipments in the latest month for which statistics are available, as reported by American Iron & Steel Institute: Structural shapes; plates, standard rails; hot and cold-finished carbon bars; black butt weld pipe and tubes; black lap weld pipe and tubes; black electric weld pipe and tubes; black seamless pipe and tubes; drawn wire; nails and staples; tin and terne plate; hot-rolled sheets; cold-rolled sheets; galvanized sheets; hot-rolled strip; and cold-rolled strip. March and April figures are preliminary.

COMPARISON OF PRICES

Representative market figures for current week; average for last month, three months and one year ago. Finished material (except tin plate) and wire rods, cents per lb; semifinished (except wire rods) and coke, dollars per net ton; others dollars per gross ton.

Finished Materials

	May 15, 1948	Apr. 1948	Feb. 1948	May 1947
Steel bars, Pittsburgh	2.875c	2.90c	2.90c	2.60c
Steel bars, del. Philadelphia	3.365	3.356	3.356	2.98
Steel bars, Chicago	2.875	2.90	2.90	2.60
Shapes, Pittsburgh	2.775	2.80	2.80	2.50
Shapes, del. Philadelphia	2.98	2.968	2.968	2.64
Shapes, Chicago	2.775	2.80	2.80	2.50
Plates, Pittsburgh	2.925	2.95	2.95	2.65
Plates, del. Philadelphia	3.21	3.19	3.19	2.85
Plates, Chicago	2.925	2.95	2.95	2.65
Sheets, hot-rolled, Pittsburgh	2.775	2.80	2.80	2.50
Sheets, cold-rolled, Pittsburgh	3.50	3.55	3.55	3.20
Sheets, No. 10 galv., Pittsburgh	3.90	3.95	3.95	3.55
Sheets, hot-rolled, Gary	2.775	2.80	2.80	2.50
Sheets, cold-rolled, Gary	3.50	3.55	3.55	3.20
Sheets, No. 10 galv., Gary	3.90	3.95	3.95	3.55
Strip, hot-rolled, Pittsburgh	3.05	3.05	2.925	2.50
Strip, cold-rolled, Pittsburgh	3.775	3.80	3.675	3.20
Bright basic, bess. wire, Pittsburgh	3.725	3.775	3.775	3.425
Wire nails, Pittsburgh	5.125	5.20	4.95	4.125
Tin plate, per base box, Pittsburgh	$6.65	$6.70	$6.70	$5.75

Semifinished

Sheet bars, Pittsburgh, Chicago	$60.00	$60.00	$56.79	$44.64
Slabs, Pittsburgh, Chicago	45.00	45.00	42.59	37.51
Rerolling billets, Pittsburgh	45.00	45.00	42.59	37.51
Wire rod 7/32 to ¼-inch, Pitts.	3.175c	3.175c	3.175c	2.55c

Pig Iron

	May 15, 1948	Apr. 1948	Feb. 1948	May 1947
Bessemer, del. Pittsburgh (N.&S. sides)	$40.996	$40.996	$40.996	$34.83
Basic, Valley	39.00	39.00	39.00	33.00
Basic, eastern del. Philadelphia	42.17	42.004	42.004	35.52
No. 2 fdry., del. Pgh. (N.&S. sides)	40.496	40.496	40.496	34.33
No. 2 fdry., del. Philadelphia	42.67	42.504	42.504	36.02
No. 2 foundry, Chicago	39.00	39.00	39.00	33.00
No. 2 foundry, Valley	39.50	39.50	39.50	33.50
Southern No. 2, Birmingham	37.88	37.88	37.88	29.28
Southern No. 2, del. Cincinnati	42.71	42.23	40.74	34.75
Malleable, Valley	39.50	39.50	39.50	33.50
Malleable, Chicago	39.50	39.50	39.50	33.50
Charcoal, low phos., fob Lyles, Tenn.	55.00	55.00	55.00	40.50
Ferromanganese, fob cars, Pittsburgh	151.00	151.00	151.00	140.25

Scrap

Heavy melt. steel, No. 1, Pittsburgh	$40.25	$40.25	$40.44	$30.00
Heavy melt. steel, No. 2, E. Pa.	39.00	39.00	39.125	28.00
Heavy melt. steel, No. 1 Chicago	39.25	39.10	39.125	29.25
Heavy melt. steel, No. 1, Valley	40.25	40.25	40.25	31.55
Heavy melt. steel, No. 1, Cleveland	39.75	39.75	39.75	30.75
Heavy melt. steel, No. 1, Buffalo	43.00	43.00	43.63	32.20
Rails for rerolling, Chicago	52.50	49.50	51.00	34.50
No. 1 cast, Chicago	69.00	68.40	66.00	38.50

Coke

Connellsville, beehive furnace	$13.00	$12.50	$12.50	$9.125
Connellsville, beehive foundry	15.125	14.875	14.78	10.375
Chicago, oven foundry, del.	20.75	19.25	19.25	16.10

FINISHED AND SEMIFINISHED IRON, STEEL PRODUCTS

Finished steel quoted in cents per pound and semifinished in dollars per net ton, except as otherwise noted. Prices apply on an individual producer basis to products within the range of sizes, grades, finishes and specifications produced at its plants. Delivered prices do not include the 3 per cent federal tax on freight.

Semifinished Steel

Carbon Steel Ingots: Rerolling quality, standard analysis, open market, $90-$95 per gross ton. Forging quality $46 per net ton, Pittsburgh, Chicago, Gary, Cleveland, Birmingham, Buffalo, Youngstown.

Alloy Steel Ingots: Pittsburgh, $56 per gross ton.

Rerolling Billets, Blooms, Slabs: Pittsburgh, Chicago, Gary, Buffalo, Birmingham, $45 per net ton; Cleveland, $47 per net ton; sales by smaller interests on negotiated basis at $85 per gross ton, or higher.

Forging Quality Billets, Blooms, Slabs: Pittsburgh, Chicago, Gary, Cleveland, Buffalo, Birmingham, $54 per net ton.

Alloy Billets, Slabs, Blooms: Pittsburgh, Chicago, Buffalo, Bethlehem, Canton, Massillon, $66 per gross ton.

Sheet Bars: Pittsburgh, Chicago, Cleveland, Buffalo, Canton, Youngstown, $60 nom., per net ton; sales in open market $95-105 per gross ton.

Skelp: Pittsburgh, 2.85-2.90c; Youngstown, 2.90c per lb.

Tube Rounds: Pittsburgh, Chicago, Gary, Cleveland, $69-70 per net ton; some sellers quoting up to $120 per gross ton.

Wire Rods: Pittsburgh, Chicago, Birmingham, 7/32 to ½-in., inclusive, $2.80-3.55 per 100 lb. 7/32 to 47/64-in., inclusive, $2.75, Cleveland; Galveston, $2.95; Worcester, $2.90-2.95. San Francisco (base del.), $3.5245.

Bars

Hot-Rolled Carbon Bars (O.H. only) and Bar-Size Shapes under 3-in. (Base 20 tons one size): Pittsburgh, Youngstown, Chicago, Gary, Birmingham, 2.85-2.90c; Cleveland, Buffalo, 2.90c; Detroit, del., 3.11c; eastern Mich., 3.18c New York, del., 3.43c; Phila., del., 3.34-3.39c; San Francisco (base, del.), 3.5845-3.95c; Los Angeles (base, del.), 3.579-3.86c; Seattle, 3.8375-3.85c, base.

Rail Steel Bars: Same basing points as merchant carbon bars. Prices upon application.

Hot-Rolled Alloy Bars (Base 20 tons one size): Pittsburgh, Youngstown, Chicago, Gary, 3.20-3.30c; Canton, Massillon, Buffalo, Bethlehem, 3.30c. (Texas Steel Co. uses Chicago base price as maximum fob Fort Worth, Tex., price on sales outside Texas, Oklahoma.)

Cold-Finished Carbon Bars (Base 40,000 lb): Pittsburgh, Chicago, Gary, Cleveland, 3.45-3.55c; Buffalo, 3.45-3.55c; Detroit, del., 3.71-3.76c; Toledo, 3.78-3.83c.

Cold-Finished Alloy Bars: Pittsburgh, Chicago, Cleveland 4.00-4.10c; Gary, Buffalo, Canton, base 4.10c; Worcester, 4.20c.

Reinforcing Bars (New Billet): Pittsburgh, 2.70-2.75c; Chicago, Gary, Youngstown, Birmingham, 2.70; Sparrows Point, Buffalo, base 2.75c; San Francisco (base, del.), 3.3345c; Los Angeles (base, del.), 3.329c; Seattle, 3.88c-4.18c base.

Iron Bars: Single refined: Pittsburgh 7.70c (hand puddled), Economy, Pa., 8.65c. Double refined: Pittsburgh 9.75c (hand puddled), Economy, Pa., 10.00c. Staybolt: Pittsburgh 11.25c (hand puddled), Economy, Pa., 10.20c.

Sheets

Hot-Rolled Sheets (18 gage and heavier): Pittsburgh, Chicago, Gary, Birmingham, Youngstown, 2.75-2.80c; Cleveland, Buffalo, Sparrows Point, Ashland, Ky., base, 2.80c; Detroit, del., 3.01c; eastern Mich., del., 3.08c; Philadelphia, del., 3.06c; New York, del., 3.18c; Los Angeles (base, del.), 3.494-3.544c; San Francisco, (base, del.) 3.4995-3.5495c. (Alan Wood Steel Co., Conshohocken, Pa., quotes 4.20c, Sparrows Point equivalent).

Cold-Rolled Sheets: Pittsburgh, Chicago, Gary, 3.45-3.55c; Cleveland, 3.50-3.55c; Middletown, 3.50c; Buffalo, Youngstown, Sparrows Point, 3.55c; Granite City, 3.65c; Detroit, del., 3.76c; eastern Mich., del., 3.83c; New York, del., 3.93c; Philadelphia, del., 3.81c.

Galvanized Sheets, No. 10: (Based on 5 cent zinc) Pittsburgh, Gary, Birmingham, 3.85-3.95c; Chicago, Sparrows Point, Canton, Middletown, 3.95c; Kokomo, 4.55c; Youngstown, 3.95-4.45c; Granite City, 4.35c; New York, del., 4.33c; Philadelphia, del., 4.21c; Los Angeles (base, del.), 4.624c; San Francisco (base, del.), 4.6295c.

Corrugated Galvanized Sheets, No. 10: (Based on 5 cent zinc, Pittsburgh 3.95-4.05c; Chicago, 4.05c; Gary, Birmingham base, 3.95c.

Aluminized Sheets: Hot-dipped, coils or cut to lengths: Pittsburgh, 7.50c.

Long Ternes, No. 10: Pittsburgh, Chicago, Gary, base, 4.05c.

Enameling Sheets, No. 12: Pittsburgh, 3.85-3.95c; Chicago, Gary, 3.75-3.95c; Cleveland, Middletown, 3.85c; Youngstown 3.95c-4.45c; Granite City, 4.05c; Detroit, del., 4.11c-4.16c; eastern Mich., 4.18c-4.23c.

Electrical Sheets, No. 24: Field: Pittsburgh, Chicago, Gary, 4.40-4.50c; Kokomo, Ind., 4.60c. Armature: Pittsburgh, 4.70-5.30c; Chicago, Gary, 4.70-4.80c; Granite City, Ill., 5.25c; Kokomo, Ind., 4.90c. Electrical: Pittsburgh, 5.20-5.80c; Chicago, Gary, 5.20-5.30c; Granite City, Ill., 5.75c; Kokomo, Ind., 5.40c. Motor: Pittsburgh, 5.95-6.80c; Chicago, Gary, 5.95-6.05c; Granite City, 6.50c. Dynamo: Pittsburgh, 6.65-7.00c; Granite City, 7.20c. Transformer 72, 7.15-8.25c; 65, 7.85-9.20c; 58, 8.55-9.90c; 52, 9.35c, Pittsburgh.

Strip

Hot-Rolled Strip: Pittsburgh, 2.80c-3.30c; Chicago, Gary, Birmingham, Youngstown, Cleveland, 2.75-2.80c; Detroit, del., 2.96-3.01c; eastern Mich., del., 3.03-3.08c; San Francisco (base, del.), 3.5595c; Los Angeles (base, del.), 3.554c.

Cold-Rolled Strip: 0.25 carbon and less: Pittsburgh, 3.50-4.05c; Cleveland, 3.45-3.85c; Youngstown, 3.55-3.85c; Chicago, Gary, 3.55-3.65c; Detroit, del. 3.71-3.76c; eastern Mich., 3.78-3.83c; Worcester, base, 3.65c.

Cold-Finished Spring Steel: Cleveland base: 0.26-0.40 carbon, 3.55c; over 0.40 to 0.60 carbon, 4.95-5.05c; over 0.60 to 0.80, 5.55-5.65c; over 0.80 to 1.05, 7.05-7.15c; over 1.05 to 1.35, 9.35-9.45c; add 0.20c for Worcester.

Tin, Terne, Plate

Tin Plate: Pittsburgh, Chicago, Gary, per base box of 100 lb, 1.25 lb coating $6.50, 1.50 lb coating $6.70; Sparrows Point, Birmingham and Warren, O., $6.60 and $6.80, respectively; Granite City, $6.70 and $6.90, respectively.

Electrolytic Tin Plate: Pittsburgh, Gary, per base box of 100 lb, 0.25 lb tin, $5.70; 0.50 lb tin, $5.90; 0.75 lb tin $6.10; Sparrows Point, Birmingham and Warren, O., $5.80, $6.00, $6.20, respectively; Granite City, $5.90, $6.10, $6.30, respectively.

Can Making Black Plate: Pittsburgh, Gary, per base box of 100 lb, 55 to 70 lb basis weight, $5.10; 75 to 95 lb basis weight, $5.00; 100 to 128 lb basis weight, $5.10. Warren, O., $5.20, $5.10 and $5.20, respectively.

Hollowware Enameling Black Plate: Pittsburgh, Chicago, Gary, base 29-gage, 4.65c per lb; Sparrows Point, Warren, O., 4.75c; Granite City, 4.85c.

Manufacturing Ternes (Special Coated): Pittsburgh, Chicago, Gary, per base box of 100 lb, $5.80; Granite City, Birmingham, Sparrows Point, $5.90; Granite City, $6.

Roofing Ternes: Pittsburgh, per package 112 sheets; 20 x 28 in., coating I.C. 8-lb $15.30.

Plates

Carbon Steel Plates: Pittsburgh, Chicago, Gary, Birmingham, Youngstown, 2.90-2.95c; Cleveland, Sparrows Point, 2.95c; Coatesville, 3.45c; Claymont, 3.65c; Geneva, Utah, 2.90c; Det., del., 3.21c; New York, del., 3.33c; Phila., del., 3.21c; Boston, del., 3.423c; St. Louis, del., 3.269c; San Francisco and Los Angeles, del., 3.493c for sizes and grades produced at Geneva; 3.76c for sizes and grades produced at Fontana, Calif.
(Central Iron & Steel Co., Harrisburg, Pa., 5.10c, basing points.)

Floor Plates: Pittsburgh, 4.05c; Chicago, 3.95-4.05c; Gary, 3.95c; Cleveland, 4.20c.

Open-Hearth Alloy Plates: Pittsburgh, Chicago, Gary, 3.70c; Coatesville, 4.80c.

Clad Steel Plates: Coatesville, 10% cladding: Nickel clad, 21.50c; inconel-clad, 30.00c; monel-clad, 24.00c.

Shapes

Structural Shapes: Pittsburgh, Chicago, Gary, Birmingham, 2.75-2.80c; Buffalo, Bethlehem, 2.80c; New York, del., 3.06c; Phila., del., 2.98c; Geneva, Utah 2.75c; Los Angeles (base, del.), 3.424-3.474c for sizes produced at Torrance, Calif.; Los Angeles and San Francisco, del., 3.343c for sizes produced at Geneva, 3.81c for sizes produced by Bethlehem in East; San Francisco, del., 3.54c for sizes produced at Fontana, Calif.

Beams, Wide Flange: Pittsburgh, Chicago, 2.70c.

Alloy Structural Shapes: Pittsburgh, Chicago, Gary, 3.45-3.55c.

Steel Piling: Pittsburgh, Chicago, Buffalo, $3.30 per 100 lb.

Wire and Wire Products

(Fob Pittsburgh, Chicago, Cleveland and Birmingham per 100 pounds.)

Wire to Manufacturers in carloads

Bright, basic or bessemer *$3.45–4.00
Basic MB Spring (except Birm.)..**$4.85–4.95
Upholstery Spring (except Birm.). †$4.50–4.60

Wire Products to Trade in carloads

Wire, Merchant Quality
Annealed (6 to 8 base) .....††$4.10–4.20
Galvanized (6 to 8 base) .....††$4.55–4.65
(Fob Pittsburgh, Chicago, Duluth, Birmingham, per base column).

Nails
Standard, cement-coated, galvanized.. ‡91–94
Staples, polished and galvanized .... ‡191–94
Woven fence, 15½ gage and heavier. §97–100
Barbed wire, 80-rod spool .....§§111–113
Fence Posts (with clamps) ..... ★107
Bale ties, single loop .....★★94-100

* Worcester, $3.55; Duluth, $3.50, base; San Francisco (base, del.) $4.4645 bright basic only.

** Worcester, $4.95; Duluth & Trenton, N.J., $5.10 (bright only); San Francisco (base del.) $5.8845.

† Worcester $4.60; Duluth and Trenton, N. J., $4.75, base. San Francisco (base, del.) $5.5345 black upholstery.

†† One producer quotes 25 cents higher at Birmingham and Chicago; Worcester $4.20, annealed, $4.65, galvanized; Cleveland, annealed, $4.10, galvanized, $4.55 Duluth $4.10, annealed, $4.55, galvanized; Kokomo, Ind., $4.80 annealed, $5.25 galvanized; San Francisco (base, del.) $5.1145 annealed, $5.5645 galvanized.

‡ Cols. 108 and 114 also quoted Pittsburgh; Worcester 97; Cleveland 97; Duluth, 91; San Francisco (base, del.) 112.

‡‡ Cols. 108 and 114 also quoted Pittsburgh; Worcester 97, San Francisco (base del.) 112.

§ San Francisco (base del.) 120.

§§ San Francisco (base del.) 131.

★ Duluth, 104.

★★ San Francisco (base del.) 118; Chicago, Birmingham, 94-99.

Rails, Supplies

Rails: Standard, over 60-lb fob mill, $2.70-$2.75 per 100 lb. Light rails (billet), Pittsburgh, Birmingham, $3.05 per 100 lb; light rails (rail-steel), Williamsport, Pa., Pittsburgh prices upon application

Relaying, 60 lb and over fob warehouse $60-$65 per net ton.

Supplies: Track bolts, 7.00c; heat treated, 7.25c. Tie plates $3.55-$3.65 per 100 lb, fob mill; $3.40 base. Seattle; $3.70 fob Pittsburg, Calif. Splice bars $3.75-$3.85 per 100 lb fob mill. Standard spikes, 4.85c; screw spikes, 6.75c. Axles, 4.45-4.50c.

Tubular Goods

(New price schedules, effective as of May 1, to be issued.)

Standard Steel Pipe: Base price in carlots, threaded and coupled, to consumers about $200 a net ton. Base discounts Pittsburgh on all types; Lorain on steel butt weld, and seamless; Gary, Ind., 2 points less on steel lap weld and 1 point less on steel butt weld on sizes produced in that district.

	Butt Weld			Butt Weld	
In.	Blk.	Gal.	In.	Blk.	Gal.
⅛	44½	17	1	52½	36½
¼	44½	21½	1¼	53	37
⅜	41	17	1½	53½	37½
½	47	29½	2	54	38
¾	50	33½	2½ & 3	54½	38½

	Lap Weld		Elec. Weld		Seamless	
In.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.
2	44½	28	44	27½	43½	27
2½ & 3	48½	32	47	30½	46½	30
3½-6	50½	34	49	32½	48½	32

Line Steel Pipe: Base price in carlots to consumers about $200 a net ton. Base discounts Pittsburgh and Lorain, O.

	Butt Weld		Butt Weld
In.		In.	
⅛	43½	1	51½
¼	43½	1¼	52
⅜	40	1½	52½
½	46	2	53
¾	49	2½ & 3	53½

In.	Lap Weld	Elec. Weld	Seamless
2	43½	43	42½
2½ & 3	46½	46	45½
3½-6	48½	48	47½
8	50½	50	49½
10	50	49½	49
12	49	48½	48

Standard Wrought Iron Pipe: Base price in carlots, threaded and coupled, to consumers about $200 a net ton. Base discounts Pittsburgh.

	Butt Weld		Lap Weld	
In.	Blk.	Gal.	Blk.	Gal.
⅜	+46½	+74½	+12	+34½
½	+11	+35	+6	+27½
¾	+1½	+25	— 1½	+20
1 and			— 4	+16
1¼	— 4	+16½	— 8	+10½
1½	— 9½	+13	— 6	+12
2	—10	+12½	+3	+21½

Boiler Tubes: Net base prices per 100 ft, fob Pittsburgh, in carload lots, minimum wall thickness, cut lengths 4 to 24 feet, inclusive.

		——Seamless——		—Elec. Weld—	
O.D.		Hot	Cold	Hot	Cold
Sizes	B.W.G.	Rolled	Drawn	Rolled	Drawn
1"	13	....	$12.46	$11.51	$11.51
1¼"	13	....	14.76	11.48	13.64
1½"	13	$14.00	16.47	12.69	15.22
1¾"	13	15.92	18.74	14.43	17.31
2"	13	17.84	20.99	16.17	19.39
2¼"	13	19.88	23.40	18.02	21.62
2¼"	12	21.90	25.77	19.86	23.80
2½"	12	23.99	28.21	21.75	26.06
2¾"	12	25.42	29.90	23.05	27.63
3"	12	26.68	31.40	24.18	29.00
3¼"	11	31.06	36.55	28.16	33.77
3½"	11	33.35	39.26	30.23	36.27
4"	10	41.40	48.70	37.53	44.99
4½"	9	54.87	64.58	....	....
5"	9	63.52	74.74	....	....
6"	7	97.51	114.73	....	....

Pipe Cast Iron: Class B, 6-in. and over $79.50 per net ton, Birmingham; $84.50, Burlington, N. J.; $91.12, del. Chicago; 4-in. pipe, $5 higher; class A pipe, $5 a ton over Class B.

Bolts, Nuts

Fob Pittsburgh, Cleveland, Birmingham, Chicago; add 19c per cwt in carlots, Lebanon, Pa. Additional discounts: 5 for carloads; 15 for full containers, except tire, step, plow bolts.

Carriage and Machine Bolts

½-in. and smaller; up to 6 in. in length	45 off
⅝ and ⅝ x 6-in. and shorter	46 off
¾-in. and larger x 6-in. and shorter	43 off
All diameters longer than 6-in.	41 off
Tire bolts	35 off
Step bolts	43 off
Plow bolts	54 off
Lag bolts	
All diameters 6 in. and shorter	46 off
All diameters longer than 6 in.	44 off

Stove Bolts

In packages, nuts separate, 65-10 off; bulk 75 off on 15,000 of 3-in. and shorter, or 5000 over 3 in., nuts separate.

Nuts

Semifinished hexagon	A.S. Light	A.S. Reg. and Heavy
⅞-in and smaller	46 off	....
1-in. and smaller	....	44 off
½-in.-1-in.	44 off	....
⅛-in.-1-in.	....	43 off
1⅛-in.-1½-in.	42 off	41 off
1⅝-in. and larger	....	35 off

Additional discount of 15 for full containers.

Hexagon Cap Screws (Packaged)

Upset 1-in. smaller by 6-in. and shorter (1020 bright)	53 off
Upset (1035 heat treated)	
⅝ and smaller x 6 and shorter	48 off
¾, ⅞, & 1 x 6 and shorter	44 off

Square Head Set Screws

Upset 1-in. and smaller	57 off
Headless, ¼-in. and larger	40 off
No. 10 and smaller	52 off

Rivets

Fob Pittsburgh, Cleveland, Chicago, Birmingham

Structural ½-in. and larger 5.65c
Lebanon, Pa. .....
.....5.65c plus 19c per cwt in cl., 26c lcl.
⅞-in. and under ..... 55 off
Lebanon, Pa. .....
.....55 off plus 19c per cwt in cl., 26c lcl.

Washers, Wrought

Fob Pittsburgh, Chicago, Philadelphia, to jobbers and large nut and bolt manufacturers, lcl ..... $1-$2 off

Tool Steels

Tool Steels: Pittsburgh, Bethlehem, Syracuse, Canton, O., Dunkirk, N. Y., base, cents per lb; reg. carbon 16.00-17.00c; extra carbon 20.60c; special carbon 24.00c; oil-hardening 26.00c; high carbon-chromium 47.00c.

W	Cr	V	Mo	Base Per lb
18.00	4	1	...	82.00c
1.5	4	1	8.5	59.00c
12	3	0.50	...	67.00c
6.40	4.15	1.90	5	63.00c
5.50	4.50	4	4.50	80.00c

Stainless Steels

Base, cents per lb, Pittsburgh, Chicago, and Washington, Pa.

Grade	Bars, Wire, Structurals	Plate	Sheets	Hot Rolled Strip	Cold Rolled Strip
CHROMIUM NICKEL STEELS					
301	26.00c	29.50c	37.00c	22.00c	28.00c
302	26.00	29.50	37.00	23.50	30.50
303	28.50	31.50	39.00	29.50	36.00
304	27.50	31.50	39.00	25.50	32.50
308	31.50	37.00	44.50	31.00	38.00
309	39.00	43.50*	51.00*	40.50	51.00
310	53.50	56.50†	57.50‡	53.00	61.00
316	43.50	48.00	52.00	43.50	52.00
321	31.50	37.00	44.50	32.00	41.50
347	36.00	41.50	49.00	36.00	45.50
431	21.00	24.00	31.50	19.00	24.50
440A	26.00	31.00	36.50	26.00	30.50
STRAIGHT CHROMIUM STEEL					
410	20.50	23.50	29.00	18.50	24.00
416	21.00	24.00	29.50	20.00	25.50
420	26.00	31.00	36.50	26.00	39.50
430	21.00	24.00	31.50	19.00	24.50
430F	21.50	24.50	32.00	20.50	27.00
442, 443	24.50	28.00	35.50	26.00	35.00
446	30.00	33.00	39.50	38.00	56.50
§501	9.00	13.00	17.50	13.00	18.50
§502	10.00	14.50	18.50	14.50	19.50
****STAINLESS CLAD STEEL (20%)**					
304	....	24.00	22.00	....	....
410	....	22.00	20.00	....	....
430	....	22.50	20.50	....	....
446	....	29.00	27.00	....	....

One producer quotes: * 6.50c higher, † 3.50c higher, ‡ 10.00c higher. § Low chromium.
** Fob Pittsburgh, Washington and Coatesville, Pa.; plate prices include annealing and pickling.

RAW MATERIAL AND FUEL PRICES

Minimum delivered prices do not include 3 per cent federal tax.

Pig Iron

Per Gross Ton

	Basic	No. 2 Foundry	Malleable	Bessemer
Bethlehem, Pa., base	$40.00	$40.50	$41.00	$41.50
Newark, N. J., del.	42.39	42.89	43.39	43.89
Brooklyn, N. Y., del.	....	44.40	44.90	....
Philadelphia, del.	42.17	42.67	43.17	43.67
Birmingham, base	35.88†	36.38†	....	....
Cincinnati, del.	....	42.71	....	....
Buffalo, base	40.00†	40.00†	40.50†	41.00
Boston, del.	48.42	48.42	48.92	....
Rochester, del.	42.22	42.22	42.72	43.22
Syracuse, del.	43.025	43.025	43.525	44.025
Chicago, base	38.50	39.00	39.50	40.00
Milwaukee, del.	40.22	40.72	41.22	41.72
Muskegon, Mich., del.	....	43.98	44.48	....
Cleveland, fob furnace	38.50†	39.00†	39.50†	40.00
Akron, del.	40.67	41.17	41.67	42.17
Duluth, base	39.00	39.50	40.00	40.50
Erie, Pa., base	38.50	39.00	39.50	40.00
Everett, Mass., base	....	45.00	45.50	....
Granite City, Ill., base	39.50	40.00	40.50	....
St. Louis, del.	40.25	40.75	41.25	....
‡Neville Island, Pa., base	39.00	39.50	39.50	40.00
Pittsburgh, del., N.&S. Sides	39.996	40.496	40.496	40.996
Provo, Utah, base	39.00	39.50	....	....
Seattle, Tacoma, Wash., del.	....	46.63	....	....
Portland, Oreg., del.	....	46.63	....	....
Los Angeles, San Francisco	46.13	46.63	....	....
Sharpsville, Pa., base	39.00	39.50	39.50	40.00
Steelton, Pa., base	40.00	40.50	41.00	41.50
Struthers, O., base	39.50	....	....	....
Swedeland, Pa., base	45.00	45.50	46.00	46.50
Toledo, O., base	38.50	39.00	39.50	40.00
Cincinnati, del.	43.05	43.55	....	....
Youngstown, O., base	39.00	39.50	39.50	40.00
Mansfield, O.	42.87	43.37	43.37	43.87

† Republic Steel Corp quotes $3 a ton higher at Birmingham, effective Jan. 1, 1948; Republic quotes $2.875 higher for No. 2 foundry and malleable and $2.375 higher for basic at Buffalo, and $1.25 higher at Cleveland, effective on shipments during week ended May 16.

‡ To Neville Island base add: 79.2c for McKees Rocks, Pa.; $1.212 Lawrenceville, Homestead, McKeesport, Monaco; $1.788 Oakmont; $1.596 Verona; $1.788 Brackenridge; 99.6c to Ambridge and Aliquippa.

Blast Furnace Silvery Pig Iron

6.00-6.50 per cent (base)....$49.50
6.51-7.00..$50.75 9.01- 9.50. 57.00
7.01-7.50.. 52.00 9.51-10.00. 58.25
7.51-8.00.. 53.25 10.01-10.50. 59.50
8.01-8.50.. 54.50 10.51-11.00. 60.75
8.51-9.00.. 55.75 11.01-11.50. 62.00

Fob Jackson, O., per gross ton; Buffalo base $1.25 higher. Buyer may use whichever base is more favorable.

Bessemer Ferrosilicon

Prices same as for blast furnace silveryy iron, plus $1 per gross ton.

Electric Furnace Silvery Pig Iron Si 14.01-14.50%, $77.50, Jackson, O.; $78.75, Niagara Falls; $78 open-hearth and $79 foundry grade, Keokuk, Iowa. Add $1 a ton for each additional 0.5% Si to 18%; 50c for each 0.05% Mn over 1%; $1 a ton for 0.045% max. phos.

Charcoal Pig Iron

Semi-cold blast, low phosphorus. Fob furnace, Lyles, Tenn.....$55.00 (For higher silicon iron a differential over and above the price of base grade is charged as well as for the hard chilling iron, Nos. 5 and 6.)

Gray Forge

Neville Island, Pa. $39.00

Low Phosphorus

Steelton, Pa., Buffalo, Troy, N. Y., $46.00. Philadelphia, $48.81, delivered. Intermediate phosphorus, Central furnace, Cleveland, $42.00.

Differentials

Basing point prices are subject to following differentials:

Silicon: An additional charge of 50 cents a ton for each 0.25 per cent silicon in excess of base grade (1.75% to 2.25%).

Phosphorus: A reduction of 38 cents a ton for phosphorus content of 0.70 per cent and over.

Manganese: An additional charge of 50 cents a ton for each 0.50 per cent, or portion thereof, manganese in excess of 1%.

Nickel: An additional charge for nickel content as follows: Under 0.50%, no extra; 0.50% to 0.74%, inclusive, $2 a ton; for each additional 0.25% nickel, $1 a ton.

Metallurgical Coke

Price per Net Ton

Beehive Ovens

Connellsville, furnace	$12.00-$14.00
Connellsville, foundry	14.00- 16.25
New River, foundry	15.50
Wise county, foundry	14.25
Wise county, furnace	13.50

Oven Foundry Coke

Kearney, N. J., ovens	$20.50
Chicago, outside del.	19.50
Chicago, del.	20.75
Terre Haute, ovens	20.25
Milwaukee, ovens	20.25
New England, del.	21.75
Birmingham, del.	15.76
Indianapolis, ovens	19.50
Cincinnati, del.	18.95
Ironton, O., ovens	18.25
Erie, Pa., del.	21.55
Painesville, O., ovens	20.00
Cleveland, del.	21.55
Buffalo, del.	22.20
Detroit, del.	20.75
Philadelphia, ovens	19.55
Swedeland, Pa., ovens	19.50
Portsmouth, O., ovens	18.25

Coal Chemicals

Spot, cents per gallon

Pure and 90% benzol	21.00†
Toluol, two degrees	28.00
Industrial xylol	28.00
Solvent naphtha	28.00

Per pound fob works

Phenol (car lots, returnable drums)	13.00
Do., less than carlots	13.75
Do., tank cars	12.00

Eastern plants, per pound

Naphthalene flakes, balls, bbl. to jobbers, "household use"	12.00

Per ton, bulk, fob plants

Sulphate of ammonia	$40.00

† Freight allowed up to 2 cents.

Refractories

Net Prices

Per 1000, fob shipping point

Fire Clay Brick

Super Duty

Pa., Mo., Ky.	$92.00

High Heat Duty

Pa., Mo., Ky.	73.00
Ala., Ga.	73.00
N. J.	78.00

Intermediate Heat Duty

Ohio	67.00
Pa., Mo., Ky.	67.00
Ala., Ga.	59.00
N. J.	70.00

Low-Heat Duty

Pa., Md., Ohio	59.00

Ladle Brick

(Pa., O., Va., Mo.)

Dry Press	50.00
Wire Cut	48.00

Malleable Bung Brick

All bases	83.00

Silica Brick

Pennsylvania	73.00
Joliet, E. Chicago	82.00
Birmingham, Ala.	73.00

Basic Brick

Net tons, fob Baltimore, Plymouth Meeting, Chester, Pa.

Chrome brick	64.00
Chem. bonded chrome	64.00
Magnesite brick	86.00
Chem. bonded magnesite	75.00

Magnesite

Domestic dead-burned grains, net ton, fob Chewelah, Wash.	
Bulk	27.00
Single bags	31.50

Dolomite

Domestic, dead-burned, bulk, net tons, fob Billmeyer, Blue Bell or Williams, Pa., Millville, W. Va., Nario, Millersville, Martin, Gibsonburg or Woodville, O., $11.85; Midwest (fob Thornton or McCook, Ill.), add $0.10; Missouri Valley (fob Dolly Siding, and Bonne Terre Mo.), add $0.20.

Ores

Lake Superior Iron Ore

Gross ton, 51½% (natural) Lower Lake Ports

(Any increase or decrease in R. R. freight rates, dock handling charges and taxes thereon effective after Apr. 1, 1948, are for buyer's account.)

Old range bessemer	$6.60
Old range nonbessemer	6.45
Mesabi bessemer	6.35
Mesabi nonbessemer	6.20
High phosphorus	6.20

Eastern Local Ore

Cents, units, del. E. Pa.

Foundry and basic 56.62% contract	15.25

Foreign Ore

Cents per unit, cif Atlantic ports

No. African low phos.	Nom.
Swedish basic, 60 to 68%	13.50-14.00
Spanish, No. African basic, 50 to 60%	Nom.
Brazil iron ore, 68-69% fob Rio de Janeiro, nom.	5.50-6.50

Tungsten Ore

Wolframite and scheelite per short ton unit, duty paid	$26-$28

Manganese Ore

48-50%, duty paid, fob cars, New York, Philadelphia, Baltimore, Norfolk, Va., Mobile, Ala., New Orleans, 67.60c-72.60c.

Chrome Ore

Gross ton fob cars, New York, Philadelphia, Baltimore, Charleston, S.C., plus ocean freight differential for delivery to Portland, Oreg., and/or Tacoma, Wash. (S S paying for discharge; dry basis, subject to penalties if guarantees are not met.)

Indian and African	
48% 2.8:1	$37.50
48% 3:1	39.00
48% no ratio	31.00
South African (Transvaal)	
44% no ratio	$25.50-$26.00
45% no ratio	26.50
48% no ratio	29.00-30.00
50% no ratio	29.50-30.50
Brazilian—nominal	
44% to 2.5:1 lump	$33.65
Rhodesian	
45% no ratio	$27-$27.50
48% no ratio	30.00
48% 3:1 lump	39.00
Domestic (seller's nearest rail)	
48% 3:1	$39.00

Molybdenum

Sulphide conc., lb., Mo., cont., Mines	$0.75

Fluorspar

Metallurical grade, fob shipping point, in Ill., Ky., net tons, carloads, effective CaF_2 content, 70% or more, $35; less than 60% $32.

HIGH STRENGTH—LOW-ALLOY STEELS

Prices in dollars per 100 pounds

	Pittsburgh	Chicago	Gary	Youngstown	Sparrows Point	Buffalo	Cleveland	Bethlehem	Canton Massillon
Sheet, Hot-Rolled	4.20	4.20-4.30	4.20-4.30	4.20-4.30	4.30	4.30	4.20	...	...
Cold-Rolled	5.20	5.20-5.30	5.20-5.30	5.20-5.30	...	5.30	5.20	...	...
Galvanized	5.90	.....	.....	.....	...	6.00	...	...	...
Strip, Hot-Rolled	4.20	4.30	4.20-4.30	4.20-4.30	...	...	4.20	...	...
Cold-Rolled	5.20	5.30†	5.30†	5.30	...	...	5.20	...	...
Shapes, Structural	4.20	4.20-4.30	4.20	4.30	...	...	...	4.30	...
Plates	4.45	4.45-4.55	4.45-4.55	.....	4.55	...	...	...	...
Bars, Small Shapes	4.35	4.35-4.45	4.35-4.45	4.35-4.45	...	4.45	...	...	4.45

† Nax High Tensile, produced by Great Lakes Steel Corp., quoted 10 cents higher.

WAREHOUSE STEEL PRICES

Prices, cents per pound, for delivery within switching limits, subject to extras. Revisions are pending to reflect recent changes in mill prices and increases in freight rates.

	SHEETS					STRIP		BARS				PLATES	
	H-R 10G	C-R 10G	C-R 17G	Gal. *10G	Gal. *24G	†H-R	†C-R	H-R Rds. ⅝" to 3"	C-F Rds. ½"& up	H-R Alloy (**4140)	Structural Shapes	Carbon ⅜"-¾"	Floor ¾" & Thicker
Boston (city)	5.03	6.09[4]	5.79[4]	6.23[4]	7.58[4]	5.61	6.87	5.04	5.88	7.64	4.91	5.18	6.86
New York (city)	4.96	6.16	5.86	6.16	7.51	5.59	...	5.06	5.63	7.23	4.80	5.11	6.78
New York (country)	4.81	6.01	5.71	6.01	7.36	5.44	...	4.91	...	...	4.65	4.96	6.63
Philadelphia (city)	4.70	6.32	5.92	5.90	7.25	5.32	5.72	4.87	5.75	8.77	4.57	4.85	6.47
Philadelphia (country)	4.55	6.18	5.78	5.75	7.10	5.17	5.57	4.73	...	...	4.47	4.71	6.32
Baltimore (city)	4.32†	5.95	5.65	5.72	7.07	4.80	...	4.85	5.71	...	4.71	4.77	6.30
Baltimore (country)	4.17†	5.80	5.50	5.50	6.85	4.65	...	4.70	...	...	4.56	4.62	6.15
Washington (city)	4.81	...	...	...	...	5.08	...	5.14	5.79[12]	...	4.98	5.03	6.60
Washington (country)	4.71	...	...	...	...	4.98	...	5.04	...	...	4.88	4.93	6.50
Norfolk, Va.	4.90	...	...	...	...	...	...	5.20	6.00	...	5.15	5.15	6.90
Memphis, Tenn. (city)	4.82[20]§§	5.87[20]†	...	6.37	...	5.02[20]	...	4.97[20]	5.87	...	4.97[20]	5.17[20]	6.87[20]
Memphis, Tenn. (country)	4.72[20]§§	5.77[20]†	...	6.27	...	4.92[20]	...	4.87[20]	5.77	...	4.87[20]	5.07[20]	6.77[20]
Buffalo (city)	4.45	...	5.20[8]	6.05	...	5.25	5.65	4.40	5.10	6.85	4.40	5.00	6.25
Buffalo (country)	4.30	...	5.05[8]	5.50	...	4.70	5.50	4.25	4.95	6.85	4.25	4.45	5.75
Pittsburgh (city)	4.25§§	...	5.10[8]†	5.65	6.90	4.35	5.35	4.40	5.10	6.85	4.40	4.60	5.90
Pittsburgh (country)	4.10§§	...	4.95[8]†	5.50	6.75	4.20	5.20	4.25	4.95	6.85	4.25	4.45	5.75
Cleveland (city)	4.45	5.50[8]	5.20[8]	5.82	7.17	4.55	5.35	4.40	5.10	7.26	4.70	4.60	6.05
Cleveland (country)	4.30	5.35[8]	5.05[8]	...	...	...	5.20	4.25	4.95	...	...	4.45	5.90
Cincinnati	4.56	...	5.22	5.77	...	4.77	...	4.78	5.63	...	4.82	4.98	6.47
Detroit	4.55	...	5.30	...	...	4.72	5.63	4.50	5.22	7.10	4.77	4.88	6.28
Indianapolis	4.55	5.32[8]	...	5.87	7.12	4.65	5.90	4.70‡‡	5.40	8.85	4.70	4.90	6.35
Chicago (city)	4.45	5.50[8]	5.20[8]	5.65	6.90	4.35	5.45	4.40	5.10	6.85[9]	4.40	4.60	6.05
Chicago (country)	4.30	5.35[8]	5.05[8]	5.50	6.75	4.20	5.30	4.25	4.95	6.85[9]	4.25	4.45	5.90
Milwaukee	4.658	5.708[8]	5.408[8]	5.858	7.108	4.558	5.658	4.608	5.308	7.208[9]	4.608	4.808	6.258
St. Louis	4.78	5.83[8]	5.53[8]	6.02	7.27	4.68	5.82	4.73	5.47[12]	...	4.73	4.93	6.38
Birmingham (city)	4.45[20]§§	...	...	5.65	...	4.45[20]	...	4.40[20]	5.93[22]	...	4.40	4.65	6.86
Birmingham (country)	4.30[20]§§	...	...	5.50	...	4.30[20]	...	4.25[20]	...	...	4.25	4.50	...
New Orleans	4.98[20]**	...	6.29[18]	...	...	5.18[20]	...	5.13[20]††	6.29[11]	...	5.03[20]††	5.33[20]	7.29[20]
Omaha, Nebr.	5.462	...	...	6.712	8.012	5.362	...	5.412	6.112	7.562	5.412	5.612	7.062
Houston, Tex.	5.75	...	...	7.36	8.10	6.00	...	5.35	7.00[12]	...	5.85	5.85	6.50
Los Angeles (city)	5.75	7.75[8]	7.45[8]	7.40	8.80	6.05	8.70	5.50	7.35[22]	9.35[10]	5.35	5.55	7.65
Los Angeles (country)	5.60	7.60[8]	7.30[8]	7.25	8.65	5.90	8.55	5.35	7.20[1]	9.20[10]	5.20	5.40	7.50
San Francisco	5.40[21]	6.65[8]	...	7.05[8]	7.95[8]	5.75[21]	8.70[18]	5.05[21]	7.00[12]	...	5.30[21]	5.50[21]	7.10[21]
Seattle, Tacoma, Wash.	5.30[17]§§	...	7.10[8]‡	6.95	...	5.60[17]	...	5.45[17]	7.45[19]	8.50[12]	5.25[17]	5.55[17]	7.65[17]
Portland, Oreg.	5.30[17]§§	...	7.10[8]‡	6.70	...	5.60[17]	...	5.45[17]	7.45[19]	...	5.25[17]	5.45[17]	7.55[17]

Base Quantities: 400 to 1999 lb except as noted: Cold-rolled strip, 2000 lb and over; cold finished bars, 1000 lb and over; galvanized sheets, 450 to 1499 lb; [1]—1500 lb and over; [2]—1000 to 4999 lb; [4]—three to 24 bundles; [8]—450 to 1499 lb; [9]—400 to 1499 lb; [9]—1000 to 1999 lb; [12]—1000 to 39,999 lb; [12]—1000 lb and over; [18]—2000 lb and over; [17]—300 to 9999 lb; [18]—1500 to 1999 lb; [19]—1500 to 39,999 lb; [20]—400 to 3999 lb; [21]—400 lb and over; [22]—500 to 1499 lb.

* Includes gage and coating extra, except Birmingham (coating extra excluded); † does not include gage extras; ‡ 15 gage; ** as rolled; †† add 0.40 for sizes not rolled in Birmingham; ‡‡ add 15c per 100 lb for slow moving items; §§ 18 gage and heavier.

PRICES OF LEADING FERROALLOYS PRODUCTS

MANGANESE ALLOYS

Spiegeleisen: (19-21% Mn, 1-3% Si). Carlot per gross ton, $52, Palmerton, Pa., $51, Pittsburgh, 16% to 19% Mn., $51 Palmerton, $50, Pittsburgh.

Standard Ferromanganese: (Mn 78-82%, C 7% approx.). Carload, lump, bulk $145 per gross ton of alloy, carload packed $157, ton lot $172, less ton $189; fob New Orleans, Mobile, Philadelphia, Baltimore, or New York. Carload, lump, bulk $151, fob cars Pittsburgh, including 50c switching charge. Add, or subtract, $1.80 for each 1%, or fraction thereof, of contained manganese over 82% or under 78%.

West Coast Prices: Carload (80,000 lb or more), lump, bulk, same price and basing points as above. All other prices for shipment from Pacific Coast warehouses, add $26.21 to above prices. Delivery is fob Portland, Los Angeles, South San Francisco, or Seattle warehouses, with railroad freight allowed on shipments of 25 gross tons or more.

Low-Carbon Ferromanganese, Regular Grade: (Mn 80-85%). Eastern Zone, carload, lump, bulk, max. 0.10% C, 22.5c per lb of contained Mn, carload packed 23.25c, ton lot 24.35c, less ton 25.55c; Central, add 0.3c for c.l. and 1.1c for l.c.l.; Western, add 0.7c for c.l. and 4.4c for l.c.l. Freight allowed. Deduct 0.5c for max. 0.15% C grade from above prices, 1c for max. 0.30% C, 1.5c for max. 0.50% C, and 4.5c for max. 0.75% C—max. 7% Si. **Special Grade:** (Mn 90% approx., C 0.07% max., P 0.06% max.). Add 0.5c to above prices. Spot, add 0.25c.

Medium-Carbon Ferromanganese: (Mn 80-85%, C 1.5% max., Si 1.5% max.). Eastern Zone, carload, lump, bulk 16.5c per lb of contained Mn, carload packed 17.25c, ton lot 18.35c, less ton 19.55c; Central, add 0.3c for c.l. and 1.1c for l.c.l.; Western, add 0.7c for c.l. and 4.4c for l.c.l. Freight allowed. Spot, add 0.25c.

Manganese Metal: (Mn 96% min., Fe 2% max., Si 1% max., C 0.20% max.). Eastern Zone, carload, 2" x D, bulk 32c per lb of metal, carload packed 32.5c, ton lot 34c, less ton 36c; Central, add 1c for c.l. and 1.45c for l.c.l.; Western, add 1.45c for c.l. and 2.4c for l.c.l. Freight allowed. Spot, add 2c.

Silicomanganese: (Mn 65-70%). Eastern Zone, contract, lump, bulk, 1.50% C grade, 17-20% Si, 7.8c per lb of alloy, carload packed, 8.55c, ton lot 9.45c, less ton 10.45; Central, add 0.25c for c.l. and 0.6c for l.c.l.; Western, add 0.8c for c.l. and 2.5c for l.c.l. Freight allowed. For 2.0% C grade, Si 15-17%, deduct 0.2c from above prices. Spot, add 0.25c.

CHROMIUM ALLOYS

High-Carbon Ferrochrome: Eastern Zone, contract, c.l., lump, bulk 18.6c per lb of contained Cr, c.l., packed 19.5c, ton lot 20.65c, less ton 22.05c; Central, add 0.4c for c.l. and 1.3c for l.c.l.; Western, add 0.55c for c.l. and 2.1c for l.c.l. Freight allowed. Spot, add 0.25c.

"SM" High-Carbon Ferrochrome: (Cr 60-65%, Si 4-6%, Mn 4-6%, C 4-6%). Add 1.1c to high-carbon ferrochrome prices.

Foundry Ferrochrome: (Cr 62-66%, C 5-7%). Eastern Zone, contract, c.l., 8MxD, bulk 20.1c per lb of contained Cr, c.l., packed 21.0c, ton lot 22.35c, less ton 24.1c; Central, add 0.4c for c.l. and 1.3c for l.c.l.; Western, add 0.55c for c.l. and 2.1c for l.c.l. Freight allowed. Spot, add 0.25c.

Low-Carbon Ferrochrome: (Cr 67-72%). Eastern Zone, contract, carload, lump, bulk, max. 0.03% C 28.5c per lb of contained Cr, 0.04% C 27.5c, 0.05% C 27.0c, 0.06% C 26.5c, 0.10% C 26.0c, 0.15% C 25.5c, 0.20% C 25.25c, 0.50% C 25.0c, 1% C 24.5c, 2% C 24.25c. Carload packed add 1.1c, ton lot add 2.2c, less ton add 3.9c; Central, add 0.4c for c.l. and 0.65c for l.c.l.; Western, add 0.5c for c.l. and 1.85c for l.c.l. Freight allowed. Spot, add 0.25c.

"SM" Low-Carbon Ferrochrome: (Cr 62-66%, Si 4-6%, Mn 4-6%, add C 1.25% max.). Eastern Zone, contract, carload, lump, bulk 25c per lb of contained chromium, carload, packed 26.1c, ton lot 27.3c, less ton 29.1c; Central, add 0.4c for c.l. and 0.65c for l.c.l.; Western, add 0.5c for c.l. and 1.85c for l.c.l. Freight allowed. Spot, add 0.25c.

Low-Carbon Ferrochrome, Nitrogen Bearing: Add 2c to 0.10% C low-carbon ferrochrome prices for approx. 0.75% N. Add 2c for each 0.25% of N above 0.75%.

Chromium Metal: (Mn. 97% Cr and 1% Fe). Eastern Zone, contract, carload, 1" x D, packed, max. 0.50% C grade, 93c per lb of contained chromium, ton lot 94.5c, less ton 97c; Central, add 1.5c for c.l. and 2.5c for l.c.l.; Western, add 2.75c for c.l. and 4.5c for l.c.l. Freight allowed. Spot, add 5c.

SILICON ALLOYS

50% Ferrosilicon: Eastern Zone, contract, carload, lump, bulk 9.3c per lb of contained Si, carload packed 10.9c, ton lot 12.35c, less ton 14.0c; Central, add 0.5c for c.l. and 1.25c for l.c.l.; Western, add 0.7c for c.l. and 1.8c for l.c.l. Freight allowed. Spot, add 0.45c.

Low-Aluminum 50% Ferrosilicon: (All 0.40% max.) Add 1.3c to 50% ferrosilicon prices.

75% Ferrosilicon: Eastern Zone, contract, carload, lump, bulk 11.8c per lb of contained Si carload packed 13.1c, ton lot 14.25c, less ton 15.5c; Central, add 0.3c for c.l. add 0.75c for l.c.l.; Western, add 1.05c for c.l. and 5c for l.c.l. Freight allowed. Spot, add 0.3c.

85% Ferrosilicon: Eastern Zone, contract, carload, lump, bulk 13.3c per lb of contained Si, carload packed 14.55c, ton lot 15.55c, less ton 16.7c; Central, add 0.3c for c.l. and 0.7c for l.c.l.; Western, add 1.05c for c.l. and 4.4c for l.c.l. Freight allowed. Spot, add 0.25c.

Low-Aluminum 85% Ferrosilicon: (Al 0.50% max.). Add 0.7c to 85% ferrosilicon prices.

90% Ferrosilicon: Eastern Zone, contract, carload, lump, bulk, 15c per lb of contained Si carload packed 16.2c, ton lot 17.15c, less ton 18.2c; Central, add 0.3c for c.l. and 0.65c for l.c.l.; Western, add 1c for c.l. and 4c for l.c.l. Freight allowed. Spot, add 0.25c.

Low-Aluminum 90-95% Ferrosilicon: (Al 0.50% max.). Add 0.7c to above 90-95% ferrosilicon prices.

Silicon Metal: (Over 97% Si and 1% max. Fe.) Eastern Zone, c.l., lump, bulk, regular 17.3c per lb of Si, c.l. packed 18.5c, ton lot 19.4c, less ton 20.4c; Central, add 0.6c for c.l. and 2.25c for l.c.l.; Western, add 1.2c for c.l. and 4c for l.c.l. Add 1c for max. 0.20% calcium grade. Add 1.5c for max. 0.10% calcium grade. Deduct 0.4c for max. 2% Fe grade analyzing over 96% Si. Spot, add 0.25c.

Alsifer: (Approx. 20% Al, 40% Si, 40% Fe) Contract basis fob Niagara Falls, N. Y., lump per lb cl 6.90c; ton lots packed, 7.40c; 200 to 1999 lb, 8.15c; smaller lots, 8.65c. Spot up 0.5c.

BRIQUETTED ALLOYS

Chromium Briquets: (Weighing approx. 3¾ lb each and containing exactly 2 lb of Cr). Eastern Zone, contract, carload, bulk, 12.5c per lb or briquet, carload packed 13.2c, ton lot 14.0c, less ton 14.9c; Central, add 0.25c for c.l. and 0.9c for l.c.l.; Western, add 0.35c for c.l. and 1.5c for l.c.l. Freight allowed. Add 0.25c for notching. Spot, add 0.25c.

(Please turn to Page 154)

Remelt Aluminum Prices Rise

Refiners boost quotations ¼-cent to 2 cents a pound further due to increases in scrap prices and heavy demand for ingots. Other major metals hold steady

New York—Secondary aluminum prices continued to advance last week, reflecting keen competition for all grades of scrap. Prices of remelt aluminum ingots rose from ¼-cent to 2 cents a pound, widening the price spreads prevailing on most grades. While ingot prices have been forced higher by the rising cost of scrap, strength in the market is also attributed in part to the heavy demands for ingots.

Copper—Trading in copper was featured last week by activity in the export market with sales reported at 21.50c to 22.50c, fas New York. Bulk of the business is still being done, however, at the lower of the quoted range. In the domestic market, leading producers have opened June books and report demand as heavy as for any recent period.

One of the leading brass and bronze ingot producers lowered prices ¼-cent a pound on 85-5-5-5 grades due to an easier situation in scrap.

Copper and Brass Scrap—Due to increased supplies of red metal scrap, refiners and ingot makers have reduced their bids ¼-cent to ½-cent a pound on several grades. Brass ingot makers are now bidding about 18.25c for No. 1 copper wire scrap, 17.25c for No. 2, 16.25c for light copper and 12.12½c for radiators. Refiners are bidding about 18.75c for No. 1 copper, 17.75c for No. 2 copper, 16.75c for light copper, and 16.75c per dry copper content of 60 per cent refinery brass.

Zinc — Stocks of slab zinc, all grades, declined further last month to the lowest level since 1942, amounting to 42,910 tons at the end of April compared with 45,229 tons at the end of March and 163,697 tons at the end of April, 1947. Production eased slightly to a daily average of 2344 tons in April from 2362 tons in March, making total output 70,330 and 73,209 tons for the respective months. Shipments totaled 62,535 tons in April against 64,241 tons in March to domestic users; 6469 tons against 8298 tons for export and drawback; 2645 tons against 3702 tons for government account. Unfilled orders increased at the end of April to 71,691 tons from 61,610 tons at the end of the preceding month, according to the American Zinc Institute Inc., New York.

Lead—Strike at the Parral mine of American Smelting & Refining Co. in Mexico has been settled, giving rise to hopes that strikes at other lead mines in that country will be settled soon. The Parral property had been closed for more than a month. The company's Charcas and Santa Barbara mines were still idle last week as were the mines of the San Francisco Co. which supplies ore for the American Metal Co.'s plants in Mexico.

Due in part to the shutdowns in Mexico, lead supplies in this country have been extremely tight. Sellers who have opened June books report continued heavy demand.

Tin—Output of refined tin by the Longhorn smelter totaled 2905 tons in April compared with 2602 tons in March and 2816 tons in April, 1947. Output for the first four months totaled 11,479 tons compared with 11,532 tons for the like 1947 period.

Shipments of Malayan tin amounted to 5879 tons in April, of which 2464 tons were from Singapore and 3415 tons from Penang. Shipments included 4200 tons to the United States and 1130 tons to the European continent. Straits tin shipments for the first four months, amounting to 16,270 tons, included 11,000 tons to the United States, 2139 tons to the European continent, 1335 tons to India, and 1060 tons to Canada.

World stocks of tin and tin in ores are estimated at 123,900 tons as of Feb. 28 compared with 131,400 tons on the corresponding date in 1947, according to the International Tin Study Group. These figures exclude stocks held by the Navy and the Treasury Department in the permanent stockpile, which amounted to about 12,000 tons at the end of last year.

Reflecting a gradual rise in world production, imports of tin into the United States during 1947 amounted to 64,192 long tons. This was an increase of nearly 20,000 tons over 1946. The world improvement as suggested by United States imports was not as great as the figures seem to indicate because part of our imports originated from stocks found in Japan and other Far Eastern countries at the close of the war, and were not part of 1947 production. These stocks have now been distributed and imports during 1948 will be entirely dependent on world production.

Imports of 84,192 tons combined with supplies from secondary sources of 26,482 tons made a total new supply of 90,674 tons while the consumption as limited by orders M-43 and M-81 amounted to 87,598 tons. Notable increases in consumption occurred for tinplate and solder, while use in bronze declined slightly from the previous year. The increase in tinplate reflected the absence of labor disputes in that industry during 1947 as compared with 1946, while the increased consumption for solder revealed the general high rate of industrial activity. Except for the war year 1944, consumption was the highest on record since 1941.

During the year total stocks rose by 1,600 tons. This was less than the difference between supplies and consumption, because smelting losses are not considered in the tabulation of consumption. Industrial stocks showed only slight change while government stocks rose by 2000 tons. A rise of about 7000 tons in government pig tin was partially offset by a decline of over 5000 tons in the tin content of concentrate held at the end of the year.

American Brass To Close Plants June 26-July 11

Waterbury, Conn.—Manufacturing departments of all branches of American Brass Co., will suspend operations June 26 to July 11, inclusive, for the annual vacation of employes. No shipments of materials will be made during this period. The company has requested that insofar as practicable any materials be shipped to them to arrive prior to or following the vacation period.

Tin Conservation Orders M-43 and M-81 Revised

Washington — Conservation orders M-43 (Tin) and M-81 (Cans) have been amended by the Office of Domestic Commerce, Department of Commerce. Changes in order M-43 include the following: Introduction of a simplified standard customer's certificate, to replace three previously provided for; tightening of the delivery, use and small order provisions; inclusion of specifications to guide tin plate manufacturers in checking tin coatings to determine conformity with restrictions; revision of import-export provisions to cover all forms of tin; establishment of tin-coating specifications for general-purpose export crowns which correspond with those for domestic-use crowns (both types were previously restricted to 0.25 lb tin coating).

The amendment of M-81 incorporates in the body of the order the provisions previously contained in direction 10. These are measures to conserve tin in the manufacture of cans.

New West Coast Firm To Manufacture Lead Oxides

Cincinnati — Associated Lead & Zinc Co. has been incorporated in the state of Washington and will engage principally in the manufacture of lead oxides and allied products. The company was formed jointly by the Eagle-Picher Co., this city, and Northwest Lead Co., Seattle.

The supplying of lead oxides and pigments by the newly formed company will alleviate the present shortage of supply resulting from increasing demands of the storage battery, paint manufacturing and other industries of the Pacific Coast area, officials said. Operation of Associated Lead & Zinc Co. will be separate and distinct from existing facilities of either the Eagle-Picher or Northwest Lead companies and in no way will affect the present manufacturing and general selling policies of these firms in the distribution of other products.

Erection of the initial unit of the plant, to be located adjacent to the Northwest Lead Co. in Seattle, will commence immediately. Although no figures have been released, it is understood that this new construction will represent a major investment in the industry and that the unit will be in production late in the fourth quarter of this year.

NONFERROUS METAL PRICES

(Cents per pound, carlots, except as otherwise noted.)

Copper: Electrolytic, 21.50c, Conn. Valley; Lake, 21.62½c Conn. Valley.

Brass Ingot: 85-5-5-5 (No. 115) 19.00-19.25c; 88-10-2 (No. 215) 28.00c; 80-10-10 (No. 305) 24.25c; No. 1 yellow (No. 405) 15.25-16.00c. Prices include 25 cents per 100 lb freight allowance.

Zinc: Prime western 12.00c, brass special 12.25c, intermediate 12.50c, East St. Louis; high grade 13.00c, delivered.

Lead: Common 17.30-17.35c; chemical and corroding 17.40c, St. Louis.

Primary Aluminum: 99% plus, ingots 15.00c, pigs 14.00c; metallurgical 94% min. 13.50c. Base prices for 10,000 lb and over, fob shipping point, freight allowed.

Secondary Aluminum: Piston alloy (No. 122 type) 19.50-19.75c; No. 12 foundry alloy (No. 2 grade) 19.00-19.25c; steel deoxidizing grades, notch bars, granulated or shot: Grade 1, 19.50-20.50c; grade 2 19.00-20.00c; grade 3, 18.50-19.50c; grade 4 17.00-19.00c. Prices include freight at carload rate up to 75 cents per 100 lb.

Magnesium: Commercially pure (99.8%) standard ingots, 10,000 lb and over, 20.50c, fob Freeport, Tex.

Tin: Grade A, 99.8% or higher (including Straits) 94.00c; grade B, 99.8% or higher, not meeting specifications for grade A, with 0.05% max. arsenic, 93.85c; grade C, 99.65-99.79%, incl., 93.50c; 99.5-99.64% 93.50c; grade F, 98-98.99% 92.60c for tin content. Prices are ex-dock, New York, in 5-ton lots.

Antimony: American, 99-99.8% and over but not meeting specifications below, 33.00c; 99.8% and over (arsenic 0.05% max.; other impurities, 0.1% max.) 33.50c, fob Laredo, Tex., for bulk shipments.

Nickel: Electrolytic cathodes, 99.9%, base sizes at refinery, unpacked, 33.75c; 25-lb pigs, 35.25c; shot, 36.25c; "F" nickel shot or ingots, for addition to cast iron, 34.25c. Prices include import duty.

Mercury: Open market, spot, New York, $75-$77 per 76-lb flask.

Beryllium-Copper: 3.75-4.25% Be, $20.50 per lb contained Be.

Cadmium: "Regular" straight or flat forms, $1.75, del.; special or patented shapes, $1.80.

Cobalt: 97-98%, $1.65 per lb for 550 lb (keg); $1.67 per lb for 100 lb (case); $1.72 per lb under 100 lb.

Gold: U. S. Treasury, $35 per ounce.

Silver: Open market, New York, 74.62½c per ounce.

Platinum: $98-$101 per ounce.

Palladium: $24 per troy ounce.

Iridium: $110-$120 per troy ounce.

Plating Materials

Chromic Acid: 99.9%, flake, fob Philadelphia, carloads, 22.00c; 5 tons and over 22.50c; 1 to 5 tons, 23.00c; less than 1 ton, 23.50c.

Copper Anodes: Base, 2000 to 5000 lb; fob shipping point, freight allowed: Flat untrimmed, 30.59c; oval, 30.09c; electrodeposited, 29.84c; cast, 29.59c.

Copper Cyanide: 70-71% Cu, 100-lb drums, 44.00c, fob Niagara Falls, N. Y.

Sodium Cyanide: 96-98%, ½-oz ball, in 200 lb drums, 1 to 900 lb, 15.00c; 1000 to 19,900 lb, 14.00c, fob Niagara Falls, N. Y.

Copper Carbonate: 54-56% metallic Cu; 50 lb bags, up to 250 lb, 25.00c; over 250 lb, 24.00c, fob Cleveland.

Nickel Anodes: Rolled oval, carbonized, carloads, 48.00c; 10,000 to 30,000 lb, 49.00c, 3000 to 10,000 lb, 50.00c; 500 to 3000 lb, 51.00c; 100 to 500 lb, 53.00c; under 100 lb, 56.00c; fob Cleveland. Add 1 cent for rolled depolarized.

Nickel Chloride: 100-lb kegs, 23.50c; 275-lb, or 500-lb bbls. 21.50c, fob Cleveland.

Tin Anodes: Bar, 1000 lb and over 110.00c; 500 to 999 lb, 110.50c; 200 to 499 lb, 111.00c; less than 200 lb, 112.50c; ball, 1000 lb and over, 112.25c; 500 to 999 lb. 112.75c; 200 to 499 lb, 113.25c; less than 200 lb, 114.75c, fob Sewaren, N. J.

Sodium Stannate: 25 lb cans only, less than 100 lb, to consumers and resellers, 67.4c; 100 or 300 lb drums only, 100 to 500 lb, to consumers 59.2c, to resellers 54.8c; 600 to 1900 lb, to consumers 56.8c, to resellers 52.5c; 2000 to 9900 lb, to consumers 55.0c, to resellers 50.9c; 10,000 lb or more l.c.l., to consumers 53.9c, to resellers 49.9c; carloads, to consumers 52.7c, to resellers 48.7c. Prices fob Sewaren, N. J.

Zinc Cyanide: 100-lb drums 37.25c, fob Cleveland; 37.00c, Detroit; 36.00c, fob Philadelphia.

Potassium Stannate: 350 to 1050 lb, 65.00c; 1400 to 2100 lb, 62.50c; 2450 lb and more, 61.50c.

Stannous Sulphate: Less than 2000 lb, 94.00c; more than 2000 lb, 93.00c.

Stannous Chloride (anhydrous): 400 lb-bbls, 89.00c; 100-lb kegs, 90.00c per lb.

Rolled, Drawn, Extruded Products

COPPER AND BRASS

(Base prices, fob mill.)

Sheet: Copper 33.68c; yellow brass 30.16c; commercial bronze, 95% 33.80c, 90% 33.27c; red brass, 85% 32.23c, 80% 31.70c; best quality 31.09c; Everdur, Duronze, Herculoy or equiv., hot-rolled, 38.56c; nickel silver, 18%, 42.42c; phosphor bronze, grade A, 5%, 52.70c.

Rods: Copper, hot rolled 30.03c, cold drawn 31.03c; yellow brass, free cutting, 24.69c; commercial bronze, 95% 33.49c, 90% 32.96c; red brass, 85% 31.92c, 80% 31.39c.

Seamless Tubing: Copper 33.72c; yellow brass 32.92c; commercial bronze 90% 35.68c; red brass 85% 34.89c, 80% 34.36c.

Wire: Yellow brass 30.45c; commercial bronze, 95% 34.09c, 90% 33.56c; red brass, 85% 32.52c, 80% 31.99c; best quality brass 31.38c.

Copper Wire: Bare, soft, fob eastern mills, c.l. 26.80c, l.c.l. 27.30c; weatherproof, fob eastern mills, c.l. 27.35c, l.c.l. 27.85c; magnet, delivered, c.l. 29.75c-31.13c, 15,000 lb or more 30.00c-31.38c, l.c.l. 30.50c-31.88.

ALUMINUM

(Base prices, fob shipping point)

Sheets and Circles: 2s and 3s mill finish c.l., fob shipping point.

Thickness Range, Inches	Widths or Diameters, In., Incl.	Flat Sheet Base*	Coiled Sheet Base	Coiled Sheet Circle† Base
0.249-0.136	12-48	24.0	...	...
0.135-0.126	12-48	24.5	...	...
0.125-0.096	12-48	24.5	23.1	26.3
0.095-0.077	12-48	25.0	23.2	26.5
0.076-0.061	12-48	25.5	23.4	26.7
0.060-0.048	12-48	25.7	23.6	27.0
0.047-0.038	12-48	26.1	23.8	27.3
0.037-0.030	12-48	26.4	24.1	27.7
0.029-0.024	12-48	26.8	24.4	28.1
0.023-0.019	12-36	27.4	24.8	28.6
0.018-0.017	12-36	27.9	25.3	29.3
0.016-0.015	12-36	28.6	25.9	30.1
0.014	12-24	29.4	26.6	31.1
0.013-0.012	12-24	30.2	27.3	32.0
0.011	12-24	31.1	28.1	33.1
0.010-0.0095	12-24	32.1	29.0	34.3
0.009-0.0085	12-20	33.2	30.0	35.7
0.008-0.0075	12-20	34.4	31.1	37.1
0.007	12-18	35.7	32.3	38.8
0.006	12-18	37.0	33.5	42.6

* Minimum length, 60 inches. † Maximum diameter, 24 inches.

LEAD

(Prices to jobbers, fob Cleveland, Pittsburgh)

Sheets: Full rolls, 140 sq ft or more, $20.85 per cwt.; add 50c per cwt., 10 sq ft to 140 sq ft; $1.25, less than 10 sq ft; $1, circles and segments. Pipe: Full coils, $20.10 per cwt; cut coils, $20.35. Traps and Bends: List price plus 52%.

ZINC

Sheet, 16.50c-17.00c, fob mill, 36,000 lb and over. Ribbon zinc in coils, 15.25c-16.00c, fob mill, 36,000 lb and over. Plates, not over 12-in., 14.25c; over 12-in., 15.25c.

NICKEL

(Base prices, fob mill.)

Sheets, cold-rolled, 54.00c. Strip, cold-rolled, 60.00c. Rods, hot-rolled 50.00c, cold-finished 55.00c. Angles, hot-rolled, 50.00c. Plates, 52.00c. Seamless tubes, 83.00c.

MONEL

(Base prices, fob mill.)

Sheets, cold-rolled 43.00c; No. 35, 41.00c. Strip, cold-rolled, 44.00c. Rods, hot-rolled 39.00c; cold-finished 44.00c. Angles, hot-rolled, 39.00c. Plates, 41.00c. Seamless tubes, 71.00c. Shot and blocks, 31.00c.

MAGNESIUM

Extruded Rounds, 12 in. long, 1.312 in. in diameter, less than 25 lb, 52.00-56.00c; 25 to 99 lb, 42.00-46.00c; 100 lb to 4000 lb, 35.00-36.00c.

Scrap Metals

BRASS MILL ALLOWANCES

(Based on 21.50c, Conn., for copper)

Prices in cents per pound for less than 15,000 lb fob shipping point.

	Clean Heavy	Rod Ends	Clean Turnings
Copper	19.125	19.125	18.375
Yellow brass	15.625	15.375	14.750
Commercial Bronze			
95%	18.125	17.875	17.375
90%	17.625	17.375	16.875
Red brass			
85%	17.500	17.250	16.750
80%	17.250	17.000	16.500
Best Quality (71-79%)	16.625	16.375	15.875
Muntz Metal	14.750	14.500	14.000
Nickel silver, 5%	16.500	16.250	8.250
Phos. bronze, A. B.	20.750	20.500	19.500
Naval brass	15.250	15.000	14.500
Manganese bronze	15.250	15.000	14.375

BRASS INGOT MAKERS BUYING PRICES

(Cents per pound, fob shipping point, carload lots)

No. 1 copper 18.25, No. 2 copper 17.25, light copper 16.25, composition red brass 14.50-14.75, auto radiators 12.00-12.25, heavy yellow brass 10.50-10.75, brass pipe, 11.50-11.75.

REFINERS' BUYING PRICES

(Cents per pound, delivered refinery, carload lots)

No. 1 copper 18.75, No. 2 copper 17.75, light copper, 16.75, refinery brass (60% copper), per dry copper content 16.75.

DEALERS' BUYING PRICES

(Cents per pound, New York, in ton lots or more)

Copper and Brass: Heavy copper and wire No. 1 16.50-16.75, No. 2 15.50-15.75, light copper 14.50-14.75, No. 1 composition red brass 12.75-13.00, No. 1 composition turnings 12.25-12.50, mixed brass turnings 7.25-7.50, new brass clippings 12.50-13.00, No. 1 brass rod turnings 10.00-10.50, light brass 6.50-7.00, heavy yellow brass 9.00-9.50, new brass rod ends 10.50-11.00, auto radiators, unsweated 10.00-10.25, cocks and faucets 10.00-10.50, brass pipe 10.00-10.50.

Lead: Heavy 15.00-15.25, battery plates 9.50-9.75, linotype and stereotype 16.00-16.50, electrotype 13.50-14.00, mixed babbitt 14.25-14.75, solder joints, 17.25-17.75.

Zinc: Old zinc 5.75-6.00, new die cast scrap 4.75-5.25, old die cast scrap 2.75-3.25.

Tin: No. 1 pewter 60.00-62.00, block tin pipe 77.00-78.00, auto babbitt 46.50-47.00, No. 1 babbitt 46.50-48.00, siphon tops 45.00-47.00.

Aluminum: Clippings 2S 10.00-10.50, old sheets 8.00-8.50, crankcases 8.00-8.50, borings and turnings 3.25-3.75, pistons, free of struts, 8.00-8.50.

Nickel: Anodes 16.00-17.00, turnings 12.50-13.00, rod ends 16.00-17.00.

Monel: Clippings 12.00-12.50, turnings 7.00-7.25, old sheets 10.00-10.50, rods 10.00-10.50 castings 9.00.

DAILY PRICE RECORD

	Copper	Lead	Zinc	Tin	Aluminum	Antimony	Nickel	Silver
March Avg.	21.500	14.825	12.000	94.000	15.000	33.000	33.750	74.625
April Avg.	21.500	17.037	12.000	94.000	15.000	33.000	33.750	74.625
May 1-13	21.500	17.30-17.35	12.000	94.000	15.000	33.000	33.750	74.625

NOTE: Copper: Electrolytic, del. Conn. Valley; Lead, common grade, del. E. St. Louis; Zinc, prime western, del. St. Louis; Tin, Straits, del. New York; Aluminum, primary ingots, 99%, del.; Antimony, bulk, fob Laredo, Tex.; Nickel, electrolytic cathodes, 99.9%, base sizes at refinery, unpacked; Silver, open market, New York. Prices, cents per pound; except silver, cents per ounce.

OPEN MARKET PRICES, IRON AND STEEL SCRAP

Prices are dollars per gross ton, including broker's commission, delivered at consumer's plant except where noted.

PITTSBURGH

No. 1 Heavy Melt. Steel	$40.00-40.50*
No. 2 Heavy Melt. Steel	40.00-40.50*
No. 1 Busheling	40.00-40.50*
Nos. 1, 2 & 3 Bundles	40.00-40.50*
Machine Shop Turnings	36.00-36.50
Mixed Borings, Turnings	36.00-36.50
Short Shovel Turnings	36.50-37.50
Cast Iron Borings	36.00-37.00
Bar Crops and Plate	47.50-48.00
Low Phos. Steel	47.50-48.00
Heavy Turnings	40.50-41.00

Cast Iron Grades

No. 1 Cupola	64.00-66.00
Charging Box Cast	53.00-54.00
Heavy Breakable Cast	56.00-58.00
Unstripped Motor Blocks	52.00-53.00
Malleable	69.00-70.00
Brake Shoe	52.00-53.00
Clean Auto Cast	58.00-59.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	41.00-41.50
R.R. Malleable	75.00-80.00
Axles	51.50-52.00
Rails, Rerolling	56.00-57.00
Rails, Random Lengths	60.00-61.00
Rails, 3 ft and under	61.50-62.00
Rails, 18 in. and under	62.50-63.50
Railroad Specialties	54.00-55.00
Uncut Tires	52.00-52.50
Angles, Splice Bars	53.00-54.00

* Plus applicable freight springboard.

CLEVELAND

No. 1 Heavy Melt. Steel	$39.50-40.00*
No. 2 Heavy Melt. Steel	39.50-40.00*
No. 1 Busheling	39.50-40.00*
Nos. 1 & 2 Bundles	39.50-40.00*
Machine Shop Turnings	34.50-35.00
Mixed Borings, Turnings	34.00-36.00
Short Shovel Turnings	35.50-36.00
Cast Iron Borings	35.50-36.00
Bar Crops and Plate	44.50-45.00
Punchings & Plate Scrap	44.50-45.00
Heavy Turnings	39.50-40.50
Alloy Free Turnings	37.50-38.50
Cut Structurals	46.00-49.00

Cast Iron Grades

No. 1 Cupola	67.00-69.00
Charging Box Cast	58.00-60.00
Stove Plate	58.00-60.00
Heavy Breakable Cast	54.00-56.00
Unstripped Motor Blocks	58.00-60.00
Malleable	73.00-75.00
Brake Shoes	52.00-53.00
Clean Auto Cast	68.00-70.00
No. 1 Wheels	58.00-60.00
Burnt Cast	56.00-57.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	40.50-41.50*
R.R. Malleable	73.00-78.00
Rails, Rerolling	57.00-58.00
Rails, Random Lengths	56.00-57.00
Rails, 3 ft and under	61.00-63.00
Cast Steel	56.00-58.00
Railroad Specialties	53.00-55.00
Uncut Tires	56.00-57.00
Angles, Splice Bars	57.00-59.00

* Plus applicable freight springboard.

VALLEY

No. 1 Heavy Melt. Steel	$40.00-40.50*
No. 2 Heavy Melt. Steel	40.00-40.50*
No. 1 Bundles	40.00-40.50*
Machine Shop Turnings	34.50-35.50
Short Shovel Turnings	36.50-37.00
Cast Iron Borings	36.00-36.50
Low Phos.	46.00-47.50*

Railroad Scrap

No. 1 R.R. Heavy Melt.	40.50-41.50*

* Plus applicable freight springboard.

MANSFIELD

Machine Shop Turnings	$35.00-35.50
Short Shovel Turnings	37.00-37.50

CINCINNATI

No. 1 Heavy Melt. Steel	$39.50
No. 2 Heavy Melt. Steel	39.50
No. 1 Busheling	39.50
Nos. 1 & 2 Bundles	39.50
Machine Shop Turnings	33.50
Mixed Borings, Turnings	32.50
Short Shovel Turnings	35.50
Cast Iron Borings	34.50

Cast Iron Grades

No. 1 Cupola Cast	55.00
Charging Box Cast	43.00
Heavy Breakable Cast	50.00
Stove Plate	47.00
Unstripped Motor Blocks	45.00
Brake Shoes	45.00
Clean Auto Cast	55.00
Drop Broken Cast	60.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	40.50
R.R. Malleable	68.00
Rails, Rerolling	53.00
Rails, Random Lengths	50.00
Rails, 18 in. and under	60.00

DETROIT

(Dealers buying prices, fob shipping point)

No. 1 Heavy Melt. Steel	$35.00-35.50
No. 1 Busheling	35.00-35.50
Nos. 1 & 2 Bundles	35.00-35.50
No. 3 Bundles	35.00-35.50
Machine Shop Turnings	29.00-29.50
Mixed Borings, Turnings	29.00-29.50
Short Shovel Turnings	30.00-30.50
Cast Iron Borings	30.00-30.50
Punchings & Plate Scrap	40.00-40.50

Cast Iron Grades

No. 1 Cupola Cast	58.00-60.00
Heavy Breakable Cast	48.00-50.00
Clean Auto Cast	60.00-62.00

BUFFALO

No. 1 Heavy Melt. Steel	$44.00-45.00
No. 2 Heavy Melt. Steel	39.75-42.00
No. 1 Busheling	39.75-42.00
No. 1 & 2 Bundles	39.75-42.00
Machine Shop Turnings	34.75-35.25
Mixed Borings, Turnings	34.75-35.25
Cast Iron Borings	35.50-36.00
Short Shovel Turnings	35.50-36.00
Low Phos.	46.00-47.00

Cast Iron Grades

No. 1 Cupola	66.00-67.00
Mixed Cupola	63.00-65.00
Heavy Breakable Cast	55.00-57.00
Malleable	70.00-75.00
Clean Auto Cast	62.00-64.00

Railroad Scrap

Rails, 3 ft. and under	56.00-58.00
Railroad Specialties	52.00-53.00

PHILADELPHIA

No. 1 Heavy Melt. Steel	$42.00-43.00
No. 2 Heavy Melt. Steel	39.00
No. 1 Busheling	39.00
Nos. 1 & 2 Bundles	39.00
No. 3 Bundles	37.00
Machine Shop Turnings	34.00-35.00
Mixed Borings, Turnings	34.00-35.00
Short Shovel Turnings	34.00-35.00
Bar Crop and Plate	46.50-47.50
Punchings & Plate Scrap	46.50-47.50
Cut Structurals	46.50-47.50
Elec. Furnace Bundles	43.50-44.50
Heavy Turnings	42.50-43.00
No. 1 Chemical Borings	42.00-43.00

Cast Iron Grades

No. 1 Cupola Cast	63.00-65.00
No. 1 Machinery Cast	66.00-67.00
Charging Box Cast	61.00-62.00
Heavy Breakable Cast	61.00-62.00
Unstripped Motor Blocks	59.50
Malleable	76.00-78.00
Clean Auto Cast	64.00
No. 1 Wheels	68.00-70.00

NEW YORK

(Brokers buying prices, fob shipping point)

No. 1 Heavy Melt. Steel	$34.50
No. 2 Heavy Melt. Steel	34.50
No. 1 Busheling	34.50
Nos. 1 & 2 Bundles	34.50
No. 3 Bundles	32.53
Machine Shop Turnings	28.50-29.00
Mixed Borings, Turnings	28.50-29.00
Short Shovel Turnings	30.50-31.00
Punchings & Plate Scrap	40.00-41.00
Cut Structurals	40.00-41.00
Elec. Furnace Bundles	40.00-41.00

Cast Iron Grades

No. 1 Cupola Cast	54.00-56.00
Charging Box Cast	55.00-56.00
Heavy Breakable	55.00-56.00
Unstripped Motor Blocks	51.00-53.00
Malleable	68.00-69.00

BOSTON

(Fob shipping point)

No. 1 Heavy Melt. Steel	$31.40-31.90
No. 2 Heavy Melt. Steel	31.40-31.90
No. 1 Bundles	31.40-31.90
No. 1 Busheling	31.40-31.90
Machine Shop Turnings	26.90
Mixed Borings, Turnings	26.90
Short Shovel Turnings	28.90
Bar Crops and Plate	35.00-37.00
Punchings & Plate Scrap	35.00-37.00
Chemical Borings	34.00-35.00

Cast Iron Grades

No. 1 Cupola Cast	55.00-60.00
Heavy Breakable Cast	50.00-53.00
Stove Plate	52.00-55.00
Unstripped Motor Blocks	48.00-49.00
Clean Auto Cast	48.00-50.00

CHICAGO

No. 1 Heavy Melt. Steel	$39.00-39.50
No. 2 Heavy Melt. Steel	39.00-39.50
No. 1 Bundles	39.00-39.50
No. 2 Bundles	39.00-39.50
No. 3 Bundles	37.00-37.50
Machine Shop Turnings	34.00-34.50
Mixed Borings, Turnings	34.00-34.50
Short Shovel Turnings	36.00-36.50
Cast Iron Borings	35.00-35.50
Bar Crops and Plate	46.50-47.00
Punchings	48.00-48.50
Elec. Furnace Bundles	40.00-40.50
Heavy Turnings	38.50-39.00
Cut Structurals	44.00-44.50

Cast Iron Grades

No. 1 Cupola Cast	68.00-70.00
Clean Auto Cast	68.00-70.00
No. 1 Wheels	58.00-61.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	41.25-44.25
Malleable	76.00-78.00
Rails, Rerolling	52.00-53.00
Rails, Random Lengths	49.00-50.00
Rails, 3 ft and under	56.00-57.00
Rails, 18 in. and under	58.00-59.00
Railroad Specialties	52.00-53.00
Angles, Splice Bars	52.00-53.00

ST. LOUIS

No. 1 Heavy Melt. Steel	$39.50-40.50
No. 2 Heavy Melt. Steel	37.50-38.50
Machine Shop Turnings	32.50-33.50
Short Shovel Turnings	34.50-35.50

Cast Iron Grades (Fob shipping point)

No. 1 Cupola Cast	65.00-67.00
Mixed Cast	59.00-60.00
Heavy Breakable Cast	55.00-56.00
Brake Shoes	57.00-58.00
Clean Auto Cast	65.00-67.00
Burnt Cast	59.00-60.00

Railroad Scrap

R. R. Malleable	65.00-70.00
Rails, Rerolling	50.50-52.50
Rails, Random Lengths	48.50-50.50
Rails, 3 ft and under	52.00-53.00
Uncut Tires	46.00-47.00
Angles, Splice Bars	48.00-50.00

BIRMINGHAM

No. 1 Heavy Melt. Steel	$37.00
No. 2 Heavy Melt. Steel	37.00
No. 1 Busheling	37.00
Nos. 1 & 2 Bundles	37.00
No. 3 Bundles	35.00
Long Turnings	24.50
Short Shovel Turnings	26.00-27.00
Cast Iron Borings	25.00
Bar Crops and Plate	40.00
Cut Structurals	38.50

Cast Iron Grades

No. 1 Cupola Cast	63.00
Stove Plate	60.00-62.00
No. 1 Wheels	59.00-61.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	38.00
R.R. Malleable	nom.
Axles, Steel	50.00
Rails, Rerolling	53.00-55.00
Rails, Random Length	45.00-48.00
Rails, 3 ft and under	53.00-55.00
Angles and Splice Bars	52.00-53.00

SAN FRANCISCO

No. 1 Heavy Melt. Steel	*$25.00
No. 2 Heavy Melt. Steel	*25.00
No. 1 Busheling	*25.00
Nos. 1 & 2 Bundles	*25.00
No. 3 Bundles	*20.00
Machine Shop Turnings	*15.50
Bar Crops and Plate	25.00
Cast Steel	25.00
Alloy Free Turnings	15.50
Cut Structurals	25.00
Tin Can Bundles	20.00

Railroad Scrap

No. 1 Heavy Melting	26.00
Axles	32.00
Rails, Random Lengths	26.50
Uncut Tires	33.50

* Fob California shipping point.

SEATTLE

No. 1 Heavy Melt. Steel	$26.00
No. 2 Heavy Melt. Steel	26.00
No. 1 Busheling	26.00
Nos. 1 & 2 Bundles	22.00-23.00
No. 3 Bundles	22.00-23.00
Machine Shop Turnings	14.50-16.50
Mixed Borings, Turnings	14.50-16.50
Punchings & Plate Scrap	26.00-28.00
Cut Structurals	26.00-28.00

Cast Iron Grades

No. 1 Cupola Cast	40.00
Charging Box Cast	25.00
Heavy Breakable Cast	24.00
Stove Plate	25.50
Unstripped Motor Blocks	24.00
Malleable	30.00
Brake Shoes	30.00
Clean Auto Cast	30.00
No. 1 Wheels	26.50

Railroad Scrap

No. 1 R.R. Heavy Melt.	22.00
Railroad Malleable	30.00
Rails, Random Lengths	21.50
Angles and Splice Bars	23.00

LOS ANGELES

No. 1 Heavy Melt. Steel	$25.00
No. 2 Heavy Melt. Steel	25.00
Nos. 1 & 2 Bundles	25.00
Machine Shop Turnings	16.00
Mixed Borings, Turnings	15.50-16.00
Punchings & Plate Scrap	28.00
Elec. Furnace Bundles	28.00

Cast Iron Grades

No. 1 Cupola Cast	35.00-36.00

HAMILTON, ONT.

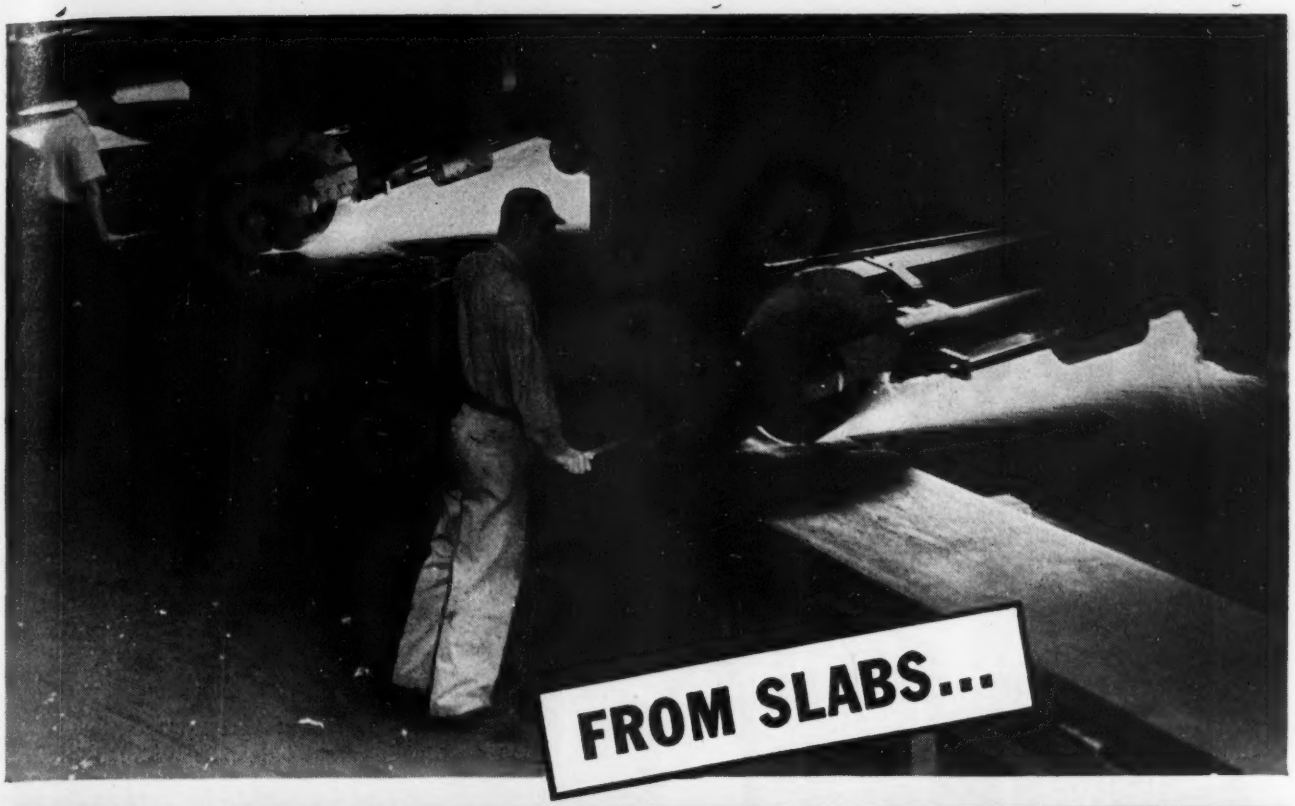
(Ceiling prices, delivered)

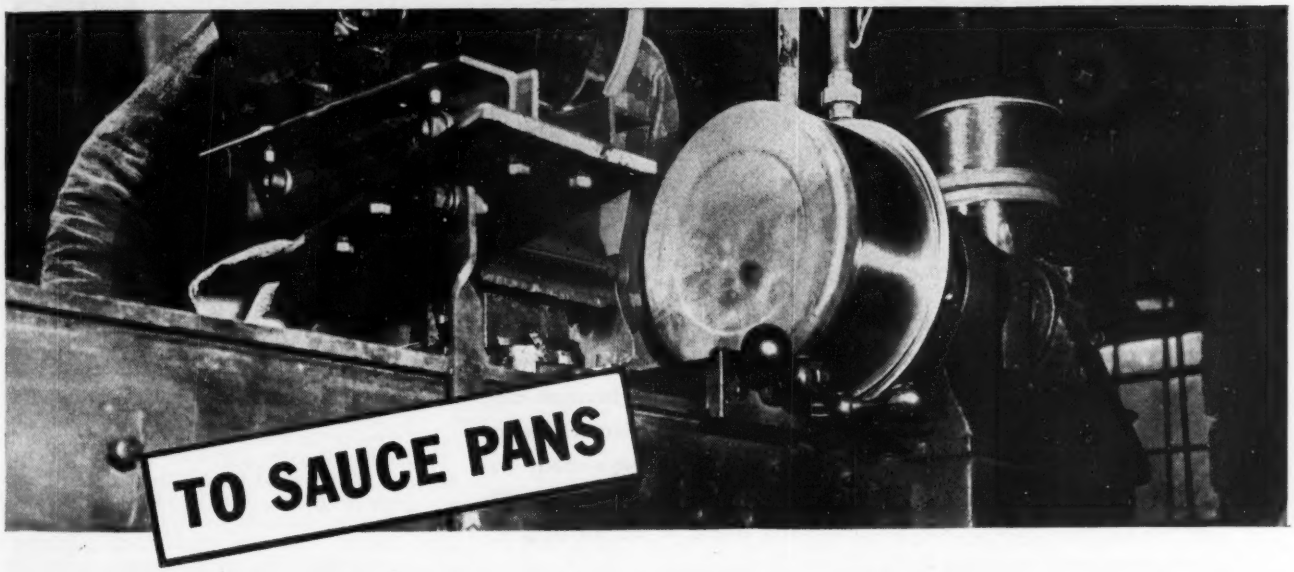
Heavy Melt.	$22.00
No. 1 Bundles	22.00
Mechanical Bundles	20.00
Mixed Steel Scrap	19.00
Mixed Borings, Turnings	17.00
Rails, Remelting	28.00
Rails, Rerolling	26.00
Bushelings	17.00
Bushelings, new factory, prep'd	21.00
Bushelings, new factory, unprep'd	16.00
Short Steel Turnings	17.00

Cast Iron Grades*

No. 1 Cast	42.00-48.00
No. 2 Cast	35.00-37.00

* Removed from price control Aug. 9, 1947; quoted on basis of fob shipping point.





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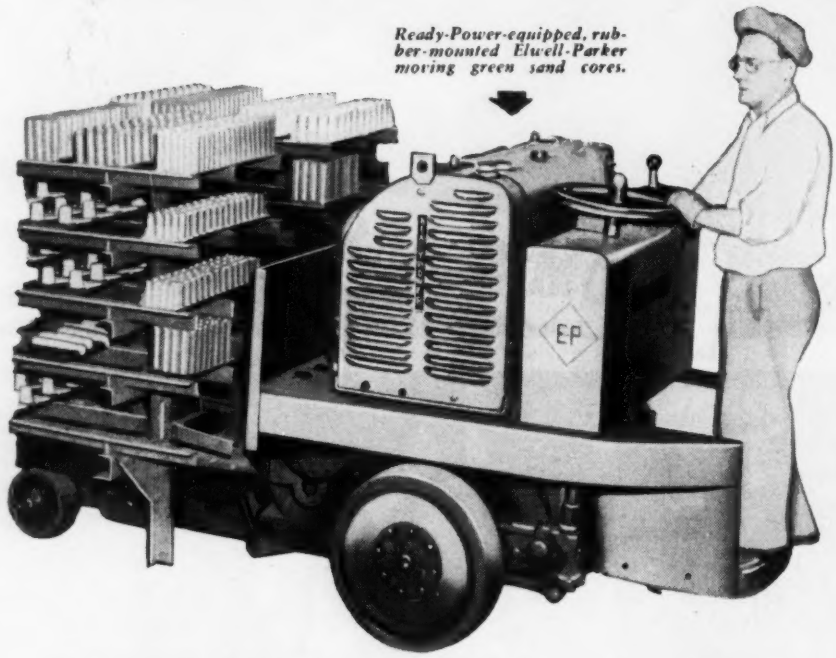

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Bethlehem and Armco Revise Prices Lists

Spang Chalfant, Youngstown Sheet & Tube, Wheatland Tube lower pipe prices

New York — Bethlehem Steel Co. has established a base at Sparrows Point on carbon cold-rolled sheets, the price being 3.55c per pound. The price applies to 24 to 14 gages, inclusive, 48 inches and narrower; 26 gage, 24 inches and narrower; and 30 to 27 gages, inclusive, 36 inches and narrower.

This action places cold rolled sheets on the same base in the East as hot-rolled and galvanized sheets, and makes the New York delivered price 3.93c, predicated on the new freight rate of 38 cents per 100 pounds. Previously, Buffalo has been the governing base on cold-rolled sheets delivered here.

Pending word of any change in the Sparrows Point base price on hot-rolled sheets and galvanized sheets, the delivered prices here on the basis of the new freight rate are 3.18c for hot-rolled and 4.33c for galvanized sheets.

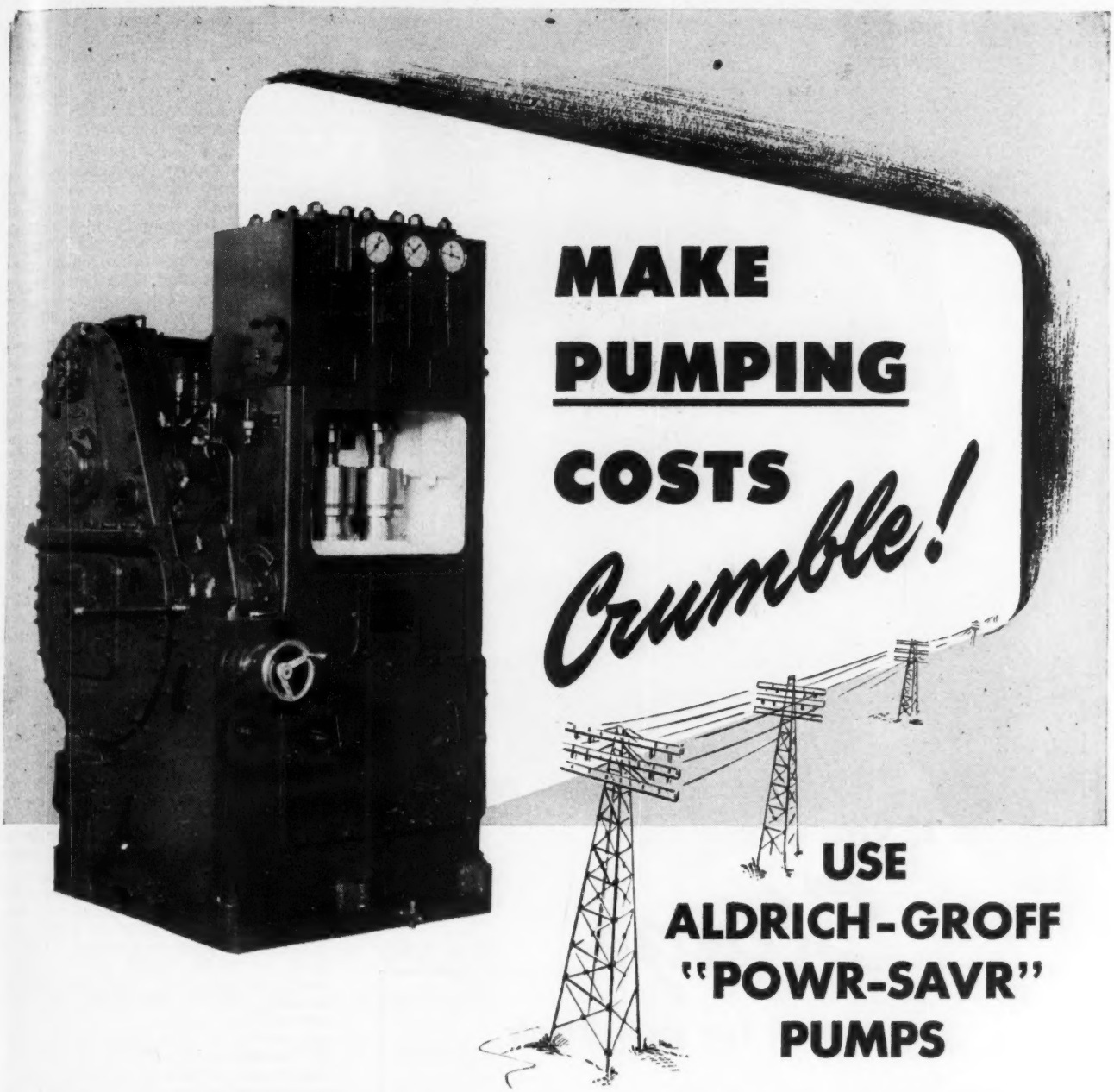
Bethlehem Steel also has revised the size limitation on hot-rolled sheets at its Sparrows Point base. Formerly hot-rolled sheets 60 inches wide and narrower and hot-rolled pickled 48 inches wide and narrower were based at Sparrows Point. The new size restrictions are 13 gage and heavier, 60-inch max.; 14 gage, 55-inch max.; and 16-gage, 48-inch max. Sizes outside this range revert to Buffalo base.

This action is significant in that Pittsburgh producers in shipping to the West Coast use the Sparrows Point base on hot-rolled sheets. Thus, for sizes no longer based at Sparrows Point, the governing basing point reverts to Pittsburgh for shipments to the West Coast.

Carnegie-Illinois Steel Corp. is the only company to date that has reduced electrical sheets in the Pittsburgh area. Further details on company's original electrical sheet price announcement follow: Armature, $4.70 at Pittsburgh and Gary; electrical, $5.20, Pittsburgh and Gary; motor, $5.95, Pittsburgh and Gary; dynamo, $6.65, Pittsburgh only. Transformer prices, base Pittsburgh only, are: No. 72, $7.15; No. 65, $7.85; No. 58, $8.55; and No. 52, $9.35.

Effective as of May 10, Bethlehem Steel Co. made the following reductions in prices on stock items: About $3 a ton to $9 on nails and staples; $2 a ton to $111 on barbed wire, $3 a ton to $97 on woven wire fence; $5 to $94 on bale ties. Reductions were made as follows on non-stock items: 15 cents per 100 pounds on nails and staples; 10 cents per 100 pounds on fence wire, and 10 cents per 100 pounds on stone wire. The following are down 10 cents per 100 pounds: Manufacturers' wire, MB wire, Silver Star spring wire, and armor wire.

Bethlehem also increased discounts



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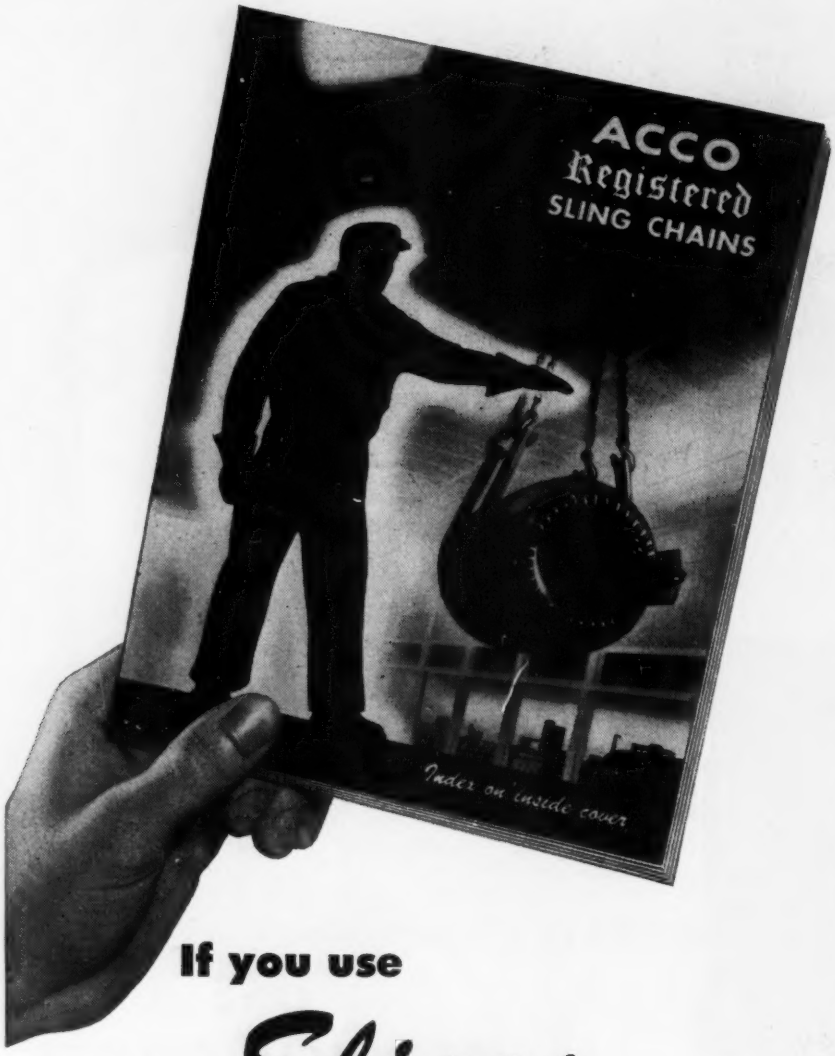

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at Pittsburgh and Lorain, O., point, effective May 10: Standard butt weld pipe, ½-inch to 3-inch, inclusive, thread and coupled, extra strong, plain ends; line butt weld, threaded and coupled, reamed and drifted, threaded and coupled, black and galvanized.

Bethlehem Steel Co. has reduced coke tin plate, 150-lb. tin coating, 10 cents to $6.80, Sparrows Point per base box of 100 pounds; also hollowware enameling black plate, 29-31 gage, 10 cents per hundred pounds, to 4.75c per pound, Sparrows Point. The new prices were effective on quotations May 4 and shipments May 1.

Pittsburgh — Establishment of a Sparrows Point price base on cold-rolled sheets by Bethlehem Steel Co. means increased freight absorption for producers in this area. Before the recent price reduction by Carnegie and Jones & Laughlin, the Pittsburgh price base on cold-rolled sheets was $3.55, and on shipments into Philadelphia from Pittsburgh the carload freight rate of 49 cents brought the price to $4.04. Previously on shipments out of Buffalo to Philadelphia, the price was $4.08 delivered, including a 53-cent freight charge. The recently established price base of $3.55 at Sparrows Point makes the Philadelphia delivered price $3.81,including 26 cents freight rate. Thus, Pittsburgh mills still quoting cold-rolled sheets at $3.55 have to absorb an additional 23 cents per 100 pounds, or over $4.50 a ton on shipments into Philadelphia. This increase in freight absorption, however, will not apply on all companies here for the Pittsburgh price base on cold-rolled sheets ranges between $3.45 and $3.55 per 100 pounds.

As a result of the disparity in price quotations by companies in this area, there is also a price range on hot-rolled sheet from $2.75 to $2.80, and galvanized and enameling sheets, $3.85 to $3.95. Still greater price range is noted in electrical sheets. Sellers point out that their announced prices reflect company's basing points only and in meeting competition prices will be dependent on competitor's quotations at prevailing basing point. It will also be noted that governing basing points may be altered considerably as a result of a wide variety of steel prices now prevailing at the various price bases.

Middletown, O. — Armco Steel Corp. has made the following price reductions, effective as of May 12: Cold-rolled sheets $1 a ton to $3.50 per 100 lb, Middletown, O., and Pittsburgh; cold-rolled strip, $1 a ton to $3.50, Pittsburgh; enameling sheets $2 a ton to $3.85, Middletown and Pittsburgh;; ingot iron flat galvanized sheets, 10 gage, $3 a ton to $4.35, Middletown; ingot iron flat galvanized paint grip sheets, 10 gage, $3 a ton to $4.75 per 100 lb, Middletown; magnetic ingot iron cold-rolled strip, $1 a ton to $4.90 per 100 lb, Pittsburgh; and ingot iron cold-rolled sheets were reduced to $4 per 100 lb, Middletown and Pittsburgh.

Pittsburgh — Further pipe price developments last week included reductions of $2 a ton on black and galvanized pipe by Spang Chalfant Division of National Supply Co., Bethlehem Steel Co. and Youngstown Sheet & Tube Co. Price action by these

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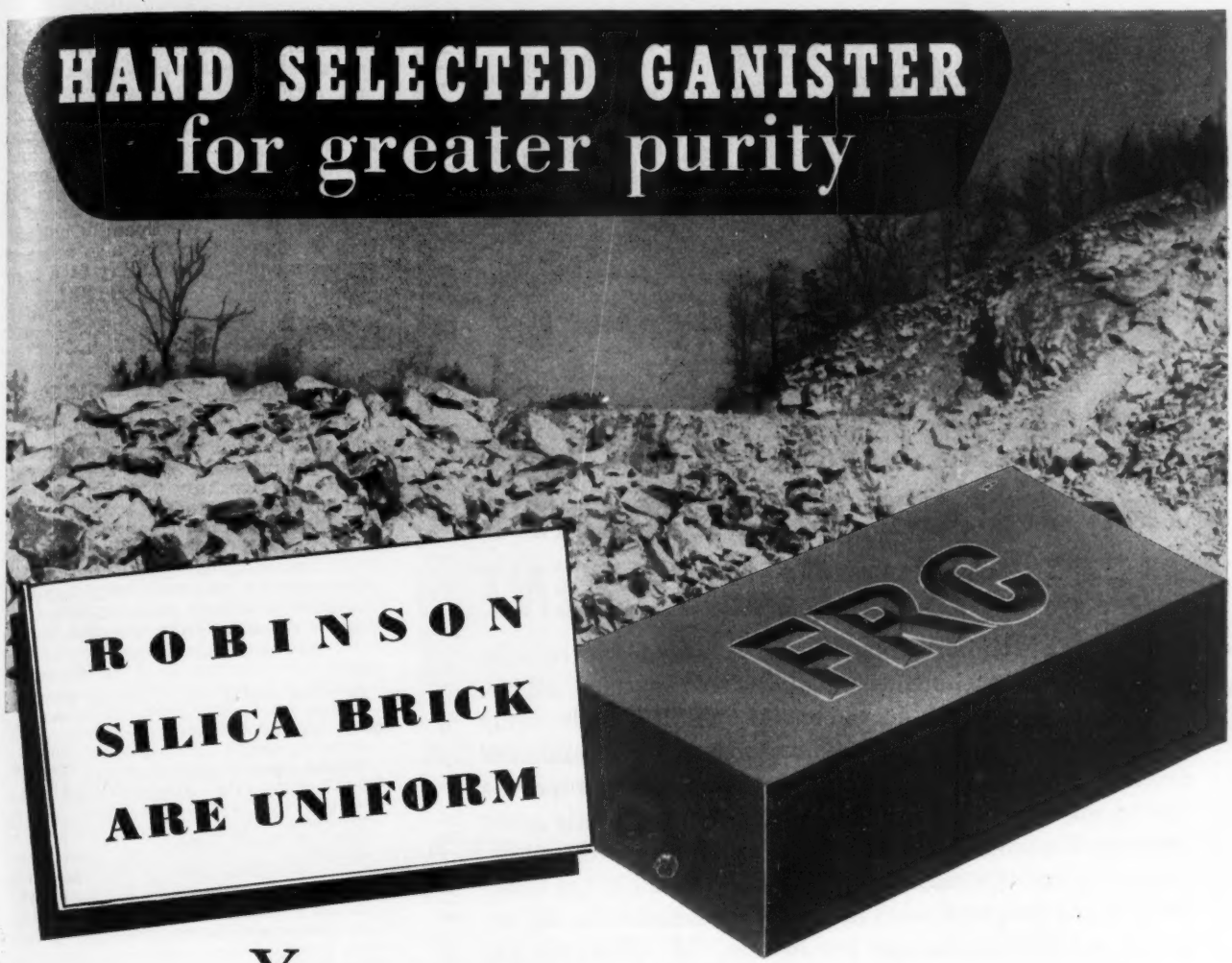

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companies was identical with that previously announced by Wheeling, Jones & Laughlin and National Tube Co. Bethlehem's pipe discounts are applicable at the Pittsburgh and Lorain bases, Youngstown Sheet & Tube at Pittsburgh, Lorain and Gary, and Spang Chalfant at Pittsburgh only. Effective date of price reductions by Bethlehem and Youngstown Sheet & Tube was May 10, Spang Chalfant May 6. Spang Chalfant also reduced seamless casing and tubing $1 a ton, drill pipe, $2.

U. S. Steel Export Co. Revises Price Schedule

New York—United States Steel Export Co., this city, has revised its export base prices to reflect new freight rates, effective May 6, covering iron and steel products for export. The schedule covers principal carbon steel products with freight included to New York, Philadelphia or Baltimore. All prices are net cash and subject to adjustment to seller's prices in effect at time of shipment from the mill.

New schedule follows:

Ingots:	Per net ton
Re-rolling quality	$60.13
Forging quality	61.13
Billets, Blooms and Slabs:	
Re-rolling quality	60.13
Forging quality	69.13
Tube Rounds	84.13
Rails	
Standard, 61 lb and over	71.28
Light, 60 lb and under	75.63
Girder	78.02
	Per 100 lb
Skelp	$3.72
Standard Structural Shapes	3.52
C.B. Sections and Bearing Piles	3.52
Plain Plates	3.77
Floor Plates	5.02
Hot-Rolled Bars	3.77
Concrete Reinforcing Bars	3.62
Fabricated Reinforcing Bars	4.22
Steel Sheet Piling	4.02
Hot-Rolled Strip	3.52
Tight Cooperage Hoops	3.82
Joint Bars for Standard Rails	4.99
Tie Plates	4.99
Axles	4.97
Sheets:	
H. R., 18 Ga. & heavier	3.70
H. R., 19 Ga. & lighter	4.55
C. R., 15 Ga.	4.40
Galvanized, plain 10 Ga.	4.67
Galvanized, corrugated, 10 Ga.	4.77
Vitrenamel, 12 Ga.	4.80
Electrical (electrical grade)	6.02
Long Ternes, 10 Ga.	4.77
Tin Plate 107#:	Per Base Box
Electrolytic Coke, 1.25 lb coating	$7.95
Electrolytic Coke, 1.50 lb coating	8.15
Electrolytic—unassorted:	
0.25 lb coating	7.15
0.50 lb coating	7.35
0.75 lb coating	7.55
Manufacturing Ternes:	
Special coated, unassorted	7.25
Unassorted	7.75
Wire Products:	Per 100 lb
Wire Rods	$3.41
C. R. Strip (0.25 C and under)	4.27
Bright Nail Wire	4.27
Black Annealed Wire	4.92
Galvanized Plain Wire	5.37
C. F. Bars	4.23
Bright Wire Nails	5.65
Bright Staples, 9 Ga.	6.45
Galvanized Staples, 9 Ga.	7.40
Barbed Wire:	Per 80 Rod Spool
Lyman, 4 pt. 5 in.	$5.66
Glidden, 2 pt. 4 in.	5.19
	Discount
American Standard Pipe, T & C:	Black · Gal.
Buttweld, 2½ in. and 3 in.	47.3% 31.3%
Seamless, 3½ in. to 6 in.	41.3% 24.8%
English Gas Tubes, T & C:	
Buttweld, 2½ in. and 3 in.	46.5% 33.5%

Sheets, Strip . . .

Allotments for government-sponsored programs will cut third quarter quotas

Sheet Prices, Page 130

New York—Sheet demand continues tight, with the third quarter outlook one of increasing stringency. Some mills have set up tentative quotas for the next quarter; however, these quotas likely will have to be revised before the new period gets far under way, as details have to be worked out with respect to certain government-sponsored programs, such as defense work, European aid, housing and petroleum requirements. As a matter of fact, adjustments are still contemplated with respect to the railroad program.

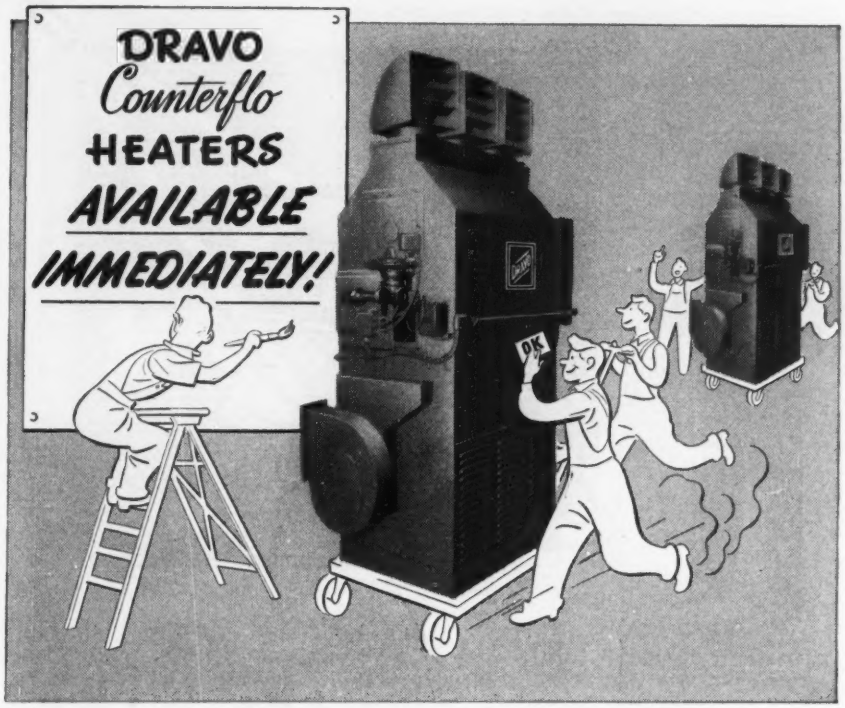
According to a recent Washington announcement, the industry has agreed to provide 212,000 tons for hot air furnaces and other housing equipment for shipment between July 1 and Feb. 28; also a definite program of 160,000 tons for atomic energy projects during the same period. Decision on oil requirements has been temporarily deferred, but it is nevertheless under active consideration and will undoubtedly result eventually in stepping up shipments for such needs.

Some producers have not as yet taken even tentative action on third quarter consumer quotas, preferring to wait for another week or so in the hope that the outlook will become more clarified by that time.

Boston—Narrow cold-rolled strip mills are losing production for the lack of hot-rolled steel; one unit was down for a week while others are revising schedules and drawing heavier on inventories. The price structure is also mixed; some have not followed the recent reduction of $2 a ton and others are pricing on a cost-plus basis for some items. Hot mills are turning down more carbon strip volume for delivery late this year. Demand for cold strip is heavy.

Philadelphia — Midwestern mills selling on a Pittsburgh base at prices ranging from 3.45c to 3.55c, base, will have to absorb from $2.60 to $4.60 a ton in meeting the new Sparrows Point delivered price here on cold-rolled sheets. This latest move now places three major sheet products on a Sparrows Point base, the other two being hot-rolled and galvanized.

Cleveland — Although no near-term softening in demand for flat-rolled carbon steel is foreseen, pressure for electrical sheets may ease by the end of summer. This belief grows from the fact a number of companies have made sizable cutbacks in fractional horsepower motor production in recognition that a supply-demand balance has been attained. As an outgrowth of this spring's midwestern windstorms, which have caused considerable damage to farm area buildings, the government has permitted Follansbee Steel Corp., Pittsburgh, to increase its tin usage to make a limited amount of roofing ternes with a 29 lb coating, instead of an 8 lb, for repairing damages. Special permission was obtained after farm area representatives emphasized the wisdom of making the replace-



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ments with long-lasting material. The suddenly increased need for roofing materials also has brought a considerable amount of aluminum roofing sheets into the storm-struck areas.

St. Louis - Pressure for sheet steel continues to gain here, chiefly as a result of the continuing withdrawal of eastern suppliers from this market due to increased freight rates. One of Granite City Steel Co's three large DPC open hearths fell in last week, and the repair interim will be extended to three or four weeks for a complete overhaul of the slab mill, which has undergone no major repairs since before the war. Third quarter books remain closed because of future production uncertainties. Coal stocks are fair; scrap piles now are the equivalent of 45 days or more; and pig iron supplies are equivalent to not more than two weeks' needs.

Wallingford, Conn. — Wallingford Steel Co. has gone on a fob mill basis, quoting low carbon cold-rolled strip steel 4.05c. This mill has been selling on Pittsburgh and Worcester, Mass., bases. Wallingford also has increased cold-rolled stainless steels 50 cents per 100 pounds, affecting major chromium-nickel and straight chromium grades, including 301, 302, 304, 410 and 430.

Steel Bars . . .

Bar Prices, Page 130

New York — Pending whatever adjustment, if any, that may be made in the 2.90-cent Buffalo base, the New York delivered price on hot-rolled bars is 3.43c, the New York State Commission having put into effect the new rate of 53 cents per 100 pounds earlier than originally indicated.

While most producers have set up tentative quotas for third quarter and on a reduced scale, there is little doubt that there will be further revisions in order to accommodate some of the government-sponsored programs. Carryover into next quarter will be heavier than at the beginning of the current quarter and may be heavier by July 1 than is now indicated. Hot and cold alloy bar deliveries continue to tighten, with most sellers having little to offer under eight weeks.

Pittsburgh — Nonintegrated and some large integrated cold-finished bar producers have not yet taken action in reducing their prices in line with the $2 reduction announced by Jones & Laughlin and American Steel & Wire. In many instances, higher freight rates also will offset some of the $2 per ton reductions in hot-rolled bars to cold finishing mills. Upward trend on new orders shows no sign of abating. One interest has initiated a program of allotting production to its district offices.

Philadelphia — Although some hot bar mills have followed the lead of the principal producer in reducing prices $1, others have taken no action, with a result that delivered prices here range from 3.34 to 3.39c. While pressure is not as great as for the major flat rolled products, demand for bars continues well in excess of supply, with an increasing inquiry for the larger sizes, particularly for forgings. Demand for cold-drawn bars is active, and while certain leading sellers have reduced prices $2 a ton, others have as yet taken no action.

Cleveland — Reflecting increase in

freight rates, Carnegie-Illinois Steel Corp. has announced following revisions in switching charges, effective May 6: Pittsburgh, from 6 to 7 cents; Chicago, from 6 to 6.5 cents; Worcester, 8.4 to 9 cents; Trenton, N. J., 3.6 to 4 cents; and Lorain, from 6 to 6.5 cents.

No change in switching charge was announced at Cleveland, which remains at 5 cents. Jones & Laughlin has put into effect a new switching charge at Pittsburgh of 7 cents, and at Cleveland of 6 cents.

Plates . . .

Plate Prices, Page 131

Philadelphia — Although price schedules are still being reviewed, eastern seaboard plate producers have announced no changes in base prices. Some indicate they will probably make no revisions at this time. Hence, pending some possible action, minimum delivered prices here on plates are 3.21c. Meanwhile, the leading Pittsburgh producer, which reduced plates at Pittsburgh and certain other points, is doing no more than meet competition here and at a cost of 18 cents per 100 pounds. The small independent producers are still quoting premiums of varying amounts.

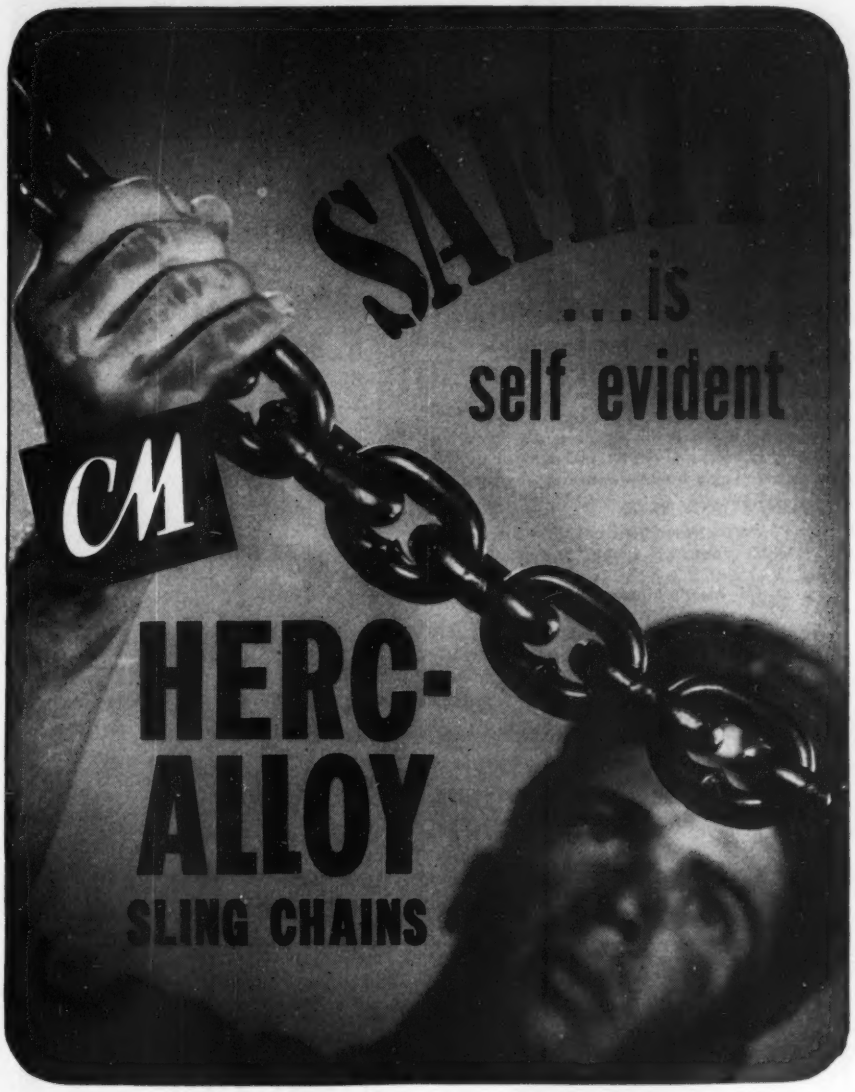
New York Shipbuilding Corp., Camden, N. J., appears to be low on five merchant ships for the President Lines, with each ship requiring 8700 tons of plates, shapes and bars, of which 7700 tons are plates. Bids were submitted to the United States Maritime Commission, which also is receiving figues for ships for the American Export Lines, each ship requiring approximately 11,000 tons of plates, shapes and bars.

Plate mills see a constantly swelling demand for some months ahead, with an increase in preference work, such as foreign aid, domestic defense, shipbuilding and oil requirements. The oil industry originally submitted to Washington an estimate of about 10,800,000 tons per year, including a wide diversity of needs which extended to barges and tank cars, recently this figure was pared down to about 6,750,000 tons, but steel producers still regard this as too much.

New York — While most plate makers are accepting tonnage for third quarter, they are moving conservatively in view of the possibility of still heavier demands, government sponsored in most cases, being imposed. Even the car program is not too definitely set up for next quarter. There appears to be little doubt that shipments to the oil and gas industries under government persuasion, will be stepped up substantially.

Up to the time of going to press, none of the eastern seaboard plate producers had revised base prices on plates. The matter is still under contemplation in some instances, particularly with regard to specialties, including floor plate. At present the New York delivered price on plain carbon plates is 3.33c, reflecting the recent increase in freight rates from Sparrows Point to 38 cents per 100 pounds.

Birmingham — Plates are moving to market in steady volume and on a schedule mills declare is the most equitable they have been able to devise after many months of study.



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Aluminum alloy construction... good balance, comfortable grip. Closed hand releases gas ... open hand cuts it off. Reduces idle flame fire hazard. Works perfectly with natural gas, manufactured gas, butane and compressed air.

WELDING TORCH W-46
Has long lever for closed hand or fingertip gas control, allows wider operating range. Weight, 14 ounces; length, 13 inches.

Meet all Underwriters Requirements

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ACCURATELY GROUND
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Gang Slitter Knives made to same quality and specifications, precision ground to ± .0002 tolerances on thickness, diameter, or bore. Extremely high finish. Also hardened spacers.

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Gentlemen: Please send me without obligation your new catalog with specific data on Slitter Knives, Spacers, Straight Blades.

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The OHIO KNIFE Co.
CINCINNATI 23, OHIO, U. S. A.

Structural Shapes . . .

Structural Shape Prices, Page 131

Pittsburgh — In addition to reducing standard structural shapes $1 a ton to $2.75 base, Carnegie has established a differential of 5 cents for wide flange beams at $2.70. To date Bethlehem Steel has not reduced prices on structural shapes, which means in the case of some consumers the governing basing point will revert to Pittsburgh. A price range of $2.90 to $2.95 per 100 pounds on plain plates currently is in effect at Pittsburgh. Jones & Laughlin Steel Corp.'s price action followed Carnegie's move in respect to the $3 reduction on floor plates only. Similarly Jones & Laughlin did not reduce prices on structurals, making a price range here of $2.75 to $2.80.

New York — Although current structural demand is spotty, both with respect to orders and inquiries, fabricators have substantial backlogs and are still selective in their bidding. Among the larger pending jobs are a ferry terminal building for the city at St. George, Staten Island, and 2200 tons for an addition to Beekman Hospital, lower Manhattan.

Boston—The new freight rate from Bethlehem to Boston is 48 cents per 100 pounds and to the extent of the advance, delivered structural steel is higher. Fabricating shops are hampered by the lack of balance in inventories. Shops expect to feel the full force of production losses next quarter when one month will be blanked out by some mills.

Seattle — Fabricating plants have committed themselves for steel on hand and supplies enroute. With the uncertainty of future shipments, they are cautious in bidding on new jobs and in some instances are entirely out of the market. Added to the general uncertainty is the confusion in prices which will require some time to clear. Several sizable jobs involving shapes have either been awarded or are pending at Hanford where construction operations are more or less behind the "iron curtain."

Wire . . .

Wire Prices, Page 131

Boston—Several wire mills have not changed prices and the competitive angle has largely disappeared. Demand for many wire items is far in excess of supply. There is no slackening in overall demand; supply of rods is limited with most mills and finishing operations are dependent on semi-finished. One mill selling on a New York base is meeting the Worcester base in the territory. Most specialties are unchanged and to the consumer slightly higher due to higher freight costs.

Birmingham — Southern mills are producing wire products at virtual capacity, but supplies remain inadequate. Even those jobbers who were reasonably optimistic last winter that spring would bring considerable relief, admit they have no wire and that nails are almost as scarce as they were in the hectic war days. Manufacturers' wire may not be quite as tight as it was a few months ago, but processors generally could use a great deal more.

Warehouse . . .

Warehouse Prices, Page 133

Pittsburgh — Warehouse steel prices here generally have been reduced in line with announced mill reductions. However, there are exceptions in respect to prices quoted by independent distributors, who have not yet taken action, waiting outcome of decision in regard to price reductions by their suppliers. Hot-rolled bars, concrete bars and structurals are off 5 cents to $4.20 per 100 pounds. Cold-finished bars have been reduced 10 cents to $4.85 basis by U. S. Steel Supply, Jones & Laughlin, and Ryerson. However, some of the independent distributors are still quoting the $4.95 figure for cold-finished bars. Floor plates 3/16-inch and thicker have been reduced 15 cents to $5.75 by two distributors; by another, 25 cents to $5.65. Similarly universal and sheared plates are off 5 cents to $4.40. Jones & Laughlin warehouses have reduced prices on hot-rolled merchant and concrete bars, plates and structurals, although no similar reductions in mill quotations were put into effect on these products.

Price range also exists in warehouse quotations on sheets and strip here. Hot-rolled sheets are quoted $4.05 to $4.10; cold-rolled sheets, $4.85 to $4.95; hot-rolled strip, $4.15 to $4.20; and cold-rolled strip, $5.10 to $5.20. U. S. Steel Supply Co. is the only distributor who has reduced galvanized sheets to date, with a price range of $5.40 to $5.50 prevailing on 10 gage. In all instances, Pittsburgh city delivery prices are 15 cents higher.

Philadelphia — Warehouse prices are in state of flux here. One or two jobbers have set up new prices on certain items tentatively, with the possibility that even these may be withdrawn before this report gets to print. Various distributors have as yet taken no action at all in the issuance of new lists, pending clarification, particularly with respect as to what some of the leading eastern producers are going to do, if anything, on certain items. Among principal products still in question are plates, shapes and sheets; among the specialties is floor plate.

While two Pittsburgh producers have reduced their base prices $3 a ton on this latter product, and a Chicago producer has made a cut of $5, eastern sellers so far have made no change. All this is reflected in an uncertain warehouse situation.

Cleveland — Warehouse steel prices have been marked down by some interests in response to recent price cuts by some steel producers. However, the new freight rate increase nullifies part of the steel price declines. With steel companies reducing quotas as a result of production interruptions, warehouses are experiencing increasing difficulty in fulfilling demand. Reflecting this steel supply shortage, many warehouse customers are asking for and accepting substitutions. Warehouses find it practically impossible to put stocks in balance, inasmuch as many products move out the same day they are received from mills.

Chicago — Warehouses in this district last week completed the task of refiguring price to reflect recent mill price reductions and the increase in freight rates. Warehouses are receiving reduced quotas of steel, ranging up to 15 per cent in some products, for third quarter on account of the loss of production during the recent coal strike. These reductions complicate matters for in periods when mills restrict quotas consumers turn to warehouses for material to provide an offset. Flat-rolled products head the list of scarce products, but small sizes of carbon bars are also uncomfortably tight.

Cincinnati — Uniformity in warehouse prices is lacking, some jobbers cutting quotations and then adding the freight increase; others were waiting for further mill announcements.

Seattle — Jobbing houses are closely watching the price trend, announcing their schedules will follow whatever policy is adopted by the leading producers. Sufficient information is not yet available but changes are in the making. It is reported that some houses have already lowered plates, shapes and cold finished steel $2 a ton, following the lead of U. S. Steel. A complete price schedule awaits action by other producers.

Tubular Goods . . .

Tubular Goods Prices, Page 131

Philadelphia — In line with the steel industry's fight against inflation,

Bailey SINTERING PLANT PUG MILL

Bailey Pug Mills are designed and built to meet the most exacting demands of steel mill service, and are in use throughout the industry. The quality and dependability of these Mills are exemplified by one that operated for more than sixteen years continuously in one of the country's best-known sintering plants. Orders have recently been received from this company for two more Bailey Pug Mills.

We will be glad to send you a bulletin giving complete details.

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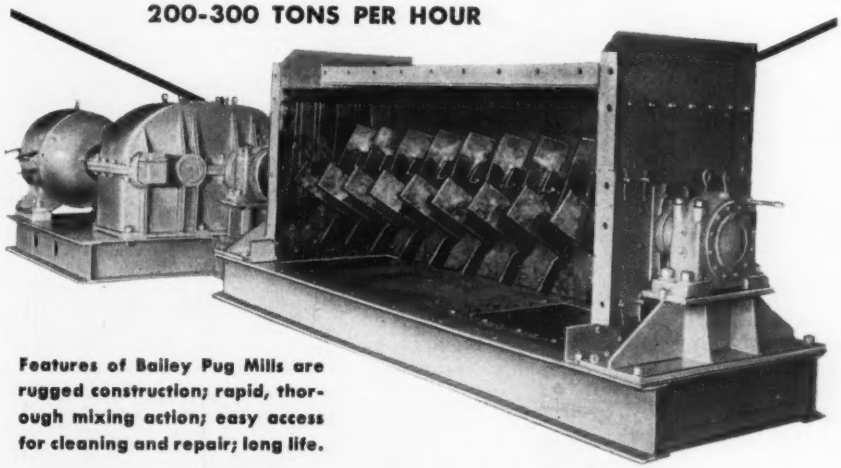

Features of Bailey Pug Mills are rugged construction; rapid, thorough mixing action; easy access for cleaning and repair; long life.

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When Manpower *Waits* . . .

Losses pile up every time manpower is forced to lose productive minutes waiting for *doors* to be opened . . . standing by while traffic passes through . . . taking time to close them. You can easily stop these hidden profit leaks.

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Push-button switches give you instant, complete, fingertip control of door action at all times, *from any number of convenient points.* It takes only a split-second of *manpower* to open or close the doors; the Kinnear Motor Operator does the rest, automatically.

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Saving Ways in Doorways
KINNEAR
ROLLING DOORS

Wheatland Tube Co. will reduce its price on butt weld pipe $2 per net ton, effective as of May 10.

Boston — Although distributors' new orders for pipe are slightly slower, backlogs are large and pressure on mills for more tonnage is unabated. Shipments to jobbers over the last year or more are better than 50 per cent over the base period on which allocations are made, but demand far outstrips the increase and distributors are unable to build inventories. Utilities are seeking more pipe, but lost production operates against any substantial increase. Pipe mills, losing the most tonnage, are cutting back quotas for next quarter, notably for July where on a monthly basis. Little capacity for pressure tubing is open for the balance of the year; cold-drawn mechanical tubing one and one-half inch and over is in October with four-inch and over beyond. Prices on pipe have stabilized more than most other steel products; the reduction being in butt weld only, most are at the new level. Butt weld for delivery to Connecticut is based Pittsburgh; Maine and Vermont, Lorain, O.; for the other New England states, the rate from each point is equal.

Tin Plate . . .

Tin Plate Prices, Page 131

Pittsburgh — With the announcement last week of a 10-cent per base box reduction in tin mill products by Bethlehem Steel and Youngstown Sheet & Tube Co., nearly all major producers, with the exception of Granite City and Republic Steel, have now established lower price level initiated by Carnegie-Illinois Steel Corp. Tin plate production schedules continue at near capacity and sellers report relatively little carryover tonnage in comparison with other steel products.

Chicago — By late last week, operations at Inland Steel Co.'s tin mill were nearing full capacity, following settlement the week before of a dispute with shearmen which had held the facilities idle for some weeks. Something in excess of six weeks' production was lost through the controversy.

Metallurgical Coke . . .

Metallurgical Coke Prices, Page 132

Pittsburgh—Further upward trend in coke prices has developed, with price range on Connellsville foundry beehive coke advancing 50 cents on the upper side of the range to $14 to $16.25. Some spot sales of Connellsville beehive furnace coke have been reported at $14.50, but bulk of tonnage seems to be moving within price range of $12 to $14. Higher prices are also prevailing for oven foundry coke in other areas, including the $1.25 advance at Portsmouth ovens to $18.25. Similar price is quoted at Ironton, O., ovens, an increase of $1.50 per net ton. Freight car shortage continues to impede coke shipments, although a number of foundries have been able to obtain sufficient coke the past ten days to gradually step up production. However, shortage of cast scrap and pig iron prevents full scale operations.

Boston — Coke has advanced to $21.75, delivered New England within a $3.70 freight. To equalize Beacon, N. Y. with the Troy, N. Y. route, from Beacon to Worcester, a proposed rate change from $2.64 to $2.56 is made. Rates apply only on shipments ex-vessel at Beacon and will not include the connecting line switching charges at Beacon or Worcester.

Chrome Ore. . .

Chrome Ore Prices, Page 132

New York — Prices on two grades of South African (Transvaal) chrome ore have been advanced with 48 per cent, no ratio, now holding at $29 to $30 per gross ton, fob cars New York, Philadelphia, Baltimore and Charleston; 50 per cent, no ratio, at $29.50 to $30.50. These prices reflect increasing stringency in supply along with higher handling charges on the other side.

Reinforcing Bars . . .

Reinforcing Bar Prices, Page 130

New York — Reinforcing bar tonnage continues scarce, with several sizable jobs pending. It is estimated that at least 10,000 tons of miscellaneous housing work for the city is active.

Seattle — Rolling mills report no cessation of the demand for small reinforcing tonnages involved in industrial and school construction to which public works jobs are adding pressure. The bulk of new orders consists of less than 100 tons each but the total volume is keeping plants at capacity operations. Efforts are made to take care of regular customers. Little headway is being made against backlogs.

Pig Iron . . .

Pig Iron Prices, Page 132

Boston — Melt by textile mill equipment builders holds at high level and these shops continue to farm out contracts for castings. Scattered small foundries are melting less and those supplying the machine tool industry are below capacity, but limited supply of pig iron forces a high ratio of scrap in most melts. Costs for March, April and June will be the base for any change in the Mystic price for foundry and malleable July 1, the highest price not to exceed the Buffalo delivered price by more than $5 a ton. Buffalo iron to Boston is now $48.42. But tonnage shipped by Republic Steel Corp. is tied to the heavy melting steel price, Buffalo.

Pittsburgh — Depleted pig iron inventories and little prospect of early relief in the tight supply situation, despite the fact pig iron output is now back to near normal, have prevented many foundries from stepping up operations. Continued critical pig iron shortage has forced foundries to pay exorbitant prices for cast scrap. There is little prospect of reduction in pig iron prices at this time due to increased cost of iron ore and coke.

Philadelphia — While pig iron is scarce, district foundries are having

even greater trouble obtaining an adequate supply of coke, the latest development in this latter regard being the suspension of all shipments by one of the leading district oven coke producers for the last two weeks of this month. This situation arose unexpectedly as a result of necessity of making repairs to mains. One leading district pig iron producer, after having canceled out all April quotas as a result of the coal strike, is making full shipments against quotas this month.

Buffalo — Lack of raw materials is causing further drastic reductions in foundry operations. One of the top melters in the area has gone on a three-day week basis. Foundries are increasing their usage of scrap, in many instances melts consisting of only 5 to 20 per cent pig iron.

Oven foundry coke prices have advanced sharply and two leading sellers no longer quote a delivered Buffalo price. One supplier advanced his Buffalo delivered price to $22.20.

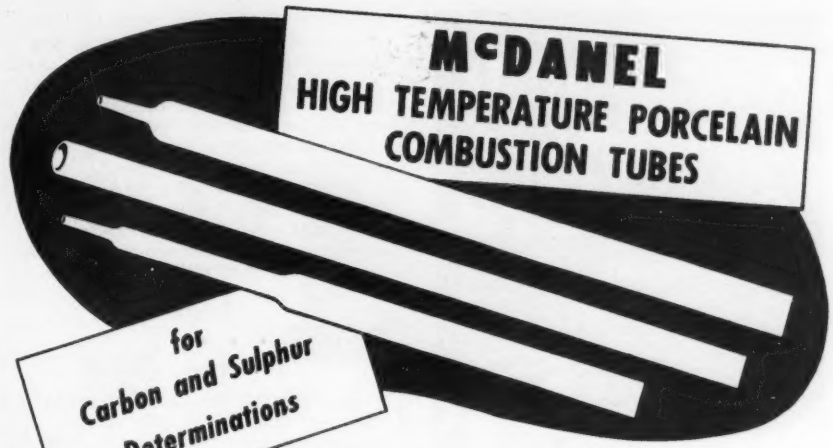
Cleveland — Pig iron shipments have increased, but they still are below demand. Because of lack of materials, some foundries are working only four days a week. However, additional new orders are being sought by light foundries to offset a drop in demand from fabricators whose inability to obtain sufficient steel has decreased their need for castings. After being down since early April for relining, Republic Steel Corp.'s blast furnace at Canton was to be blown in last Friday. Republic's pig iron price at Buffalo, based on the price of No. 1 heavy melting steel scrap, rose 50 cents a ton last week, making basic $42.375 per ton. However, that company's Cleveland pig iron price was unchanged.

Cincinnati — Although shipments of iron have improved, the pickup has been so slow that tonnage has not reached previous levels. A reputed car shortage cut off southern shipments for a few days. Many melters continue to operate on light schedules, although supplies of coke promise to be moderately freer.

New York — While pig iron shipments are increasing slowly, foundries are still seriously handicapped by shortage of coke Melt this month is expected to show little, if any, improvement over that of April. Foundries are drawing more and more on beehive coke, but their success in using it depends considerably upon the grade of material they are able to obtain. In some instances, quality is not satisfactory.

Chicago—More than 40 gray iron foundries, which shut down two weeks ago because of the strike of AFL workers, continue idle. Pressure from these shops for iron and coke has been eliminated, although deliveries of all raw materials are being accepted and stocked. Shops not affected by the strike and all those outside the Chicago area are pressing unrelentingly and are gearing their melting to receipts of iron and fuel. Of the district's 42 blast furnaces, 39 are in production and the ironmaking rate exceeds that at the beginning of the coal strike. However, the supply of metallurgical coke is not as large as before the strike because coal stocks have not been fully restored.

St. Louis - Pig iron production has been lifted back to the 1000-ton daily



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Because of their superior performance McDanel high temperature combustion tubes are preferred by metallurgical laboratories from coast to coast. McDanel Tubes are laboratory controlled from the mixing of the batch to the grinding for stopper tightness. Proper density, accurate bore size, wall thickness, etc. must be right before tubes are passed for shipment. That is why McDanel Tubes serve better and last longer and that is why McDanel Tubes are so generally preferred.

Straight, tapered, or double reduced self-cooling ends.

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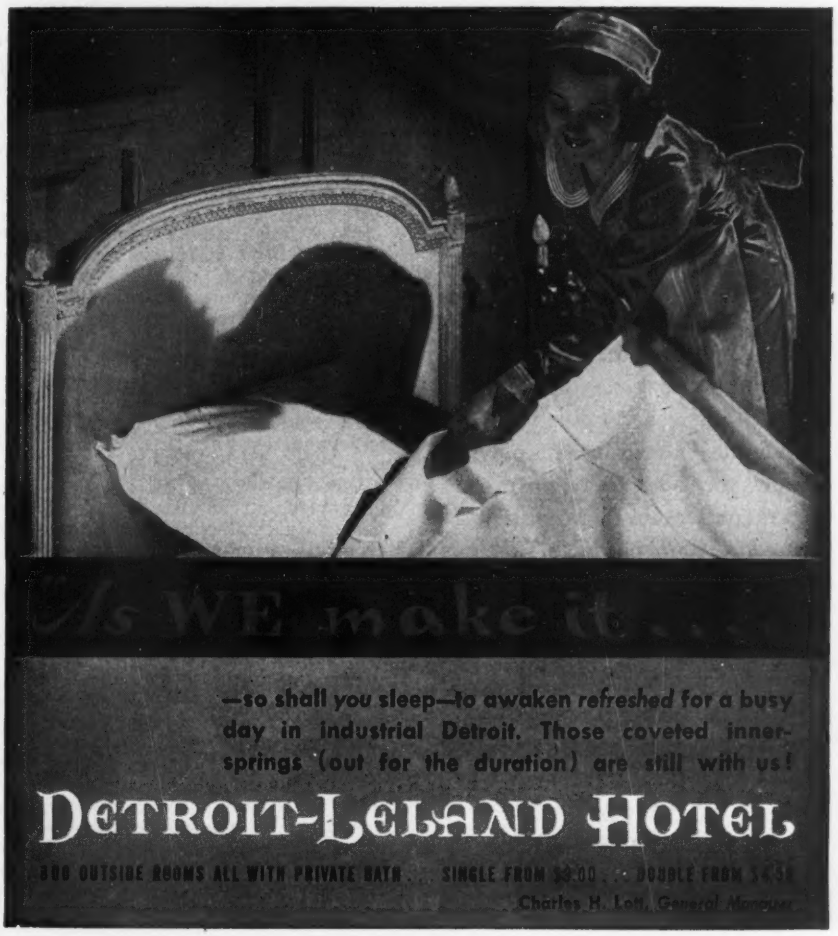
—so shall you sleep—to awaken refreshed for a busy day in industrial Detroit. Those coveted innersprings (out for the duration) are still with us!
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Charles H. Loft, General Manager

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capacity following resumption of shipments of West Virginia coal to Missouri-Illinois Furnaces Inc., Alton, Ill. Coke output is approaching capacity also. Company's interim premium of $4 per ton on pig to cover increased freight costs during the coal strike has been terminated.

Birmingham — Pig iron users are in the usual quandary occasioned by the fact they cannot depend upon supplies. No improvement is expected in the near future.

Scrap . . .

Scrap Prices, Page 136

New York—Brokers advanced their buying prices on the major open-hearth grades 50 cents a ton, now paying $34.53, fob shipping point, for No. 1 and No. 2 heavy melting steel, No. 1 busheling and No. 1 and No. 2 bundles, and $32.53 for No. 3 bundles. In cast grades, charging box and heavy breakable are up $1 to $55 to $56. All other items are unchanged but strong.

Philadelphia—Except for low phos, all grades of scrap are strong with shipments moving in only fair volume. In low phos, bar crops and plate, punchings and plate scrap and cut structurals are off 50 cents a ton to $46.50 to $47.50, delivered. Cast grades reflect the particular shortage in pig iron, with No. 1 wheels higher at $68 to $70, delivered, and with heavy breakable and charging box cast unchanged but buoyant.

Buffalo — The move to hold scrap prices at the formula was broken partially last week when one of the three leading mill consumers contracted for No. 2 heavy melting at $42 a ton. This compares with a formula price of $39.75. Stronger tendencies also were reported for No. 1 heavy melting which was changing hands around $45 a ton. Despite these figures two mills refused to budge on their formula stand. A showdown is expected between these two mills and dealers within the week when old contracts are completed.

Cleveland—Recent surge in demand for alloy and stainless steels is being reflected in increased buying of electric furnace scrap. In addition to this, Armco Steel Corp., Middletown, O., which has been adding electric furnace capacity, is reported in the market in this area for electric furnace scrap. Because of the strengthened demand for this type of scrap, buyers are going farther afield for material.

Chicago — A much stronger tone is developing in the scrap market here. Material of industrial and dealer origin is moving to steel mills at formula prices, but railroad scrap prices are rising. Result of the latter development is that less material of railroad origin is being allocated to mills at formula price.

Birmingham — While posted scrap prices were reported unchanged last week, reports persist that some scrap is moving to selected users at premiums of from $1 to $3 a ton above the current prices. Large users, however, are showing a tendency toward hesitancy in commitments over and above current needs. There is a growing feeling that definite softening of the general price structure is in early prospect.

Canada . . .

Toronto, Ont. — While the general situation in the Canadian iron and steel markets remains virtually unchanged, Dominion Steel & Coal Corp. has increased prices on a few small items, including wire nails, wire and bale ties, which have been advanced by the company 35 cents per 100 pounds, while reinforcing steel, drift bolts and angles for bedsteads have been moved up 35 cents per 100 lbs.

Pressure Eases for Mandatory Allocations

(*Concluded from Page* 44)

meantime, while occasional demands are heard on Capitol Hill for controls, they are expressions by individual congressmen or small groups of congressmen, and they are aimed at specific products rather than the broad materials picture. For example, the Petroleum Subcommittee of the House Armed Services Committee in a report issued May 6 called for compulsory steel allocations for the petroleum industry "if a voluntary program now being worked out by the Commerce Department is not successful." Another example is the resolution by Sen. Kenneth S. Wherry (Rep., Nebr.), which would ban exports of steel pipe and sheet steel for such projects as the Saudi-Arabian pipe line. None of these proposals, it is expected, will be enacted into law. In other words, Public Law 395 will not be disturbed for the time being.

STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

3500 tons, apartment buildings, Collingswood, N. J., to American Bridge Co., Pittsburgh.

400 tons, general hospital, Williamsport, Pa., through Jacob Gehron, general contractor, that city, to Bethlehem Steel Co.

400 tons, celanese plant, Narrows, Va., to Bethlehem Steel Co.

360 tons, caissons, East River station, Consolidated Electric Co., New York, to L. O. Koven & Bro., Jersey City, N. J.

260 tons, building, Wallace & Kiernan, Belleville, N. J., to Oltmer Iron Works, Jersey City, N. J.

250 tons, mineral industries building, Penn State College, Penn State, Pa., to Bethlehem Fabricators Inc., Bethlehem, Pa.

250 tons, structure at Hanford, Wash., to Pacific Car & Foundry Co., Seattle.

205 tons, telephone exchange, Englewood, N. J., to Weatherly Steel Co., New York.

195 tons, two projects, to Grand Iron Works, New York; 110 tons for a 1-story building at Byre and Rambouts Aves., New York, and 85 tons, library, Iona College, New Rochelle, N. Y.

180 tons, building, Hamden, Conn., through Caproni & Associates, New Haven, Conn., to Belmont Iron Works, Eddystone, Pa.

170 tons, construction, Standard Oil Co. of New Jersey, Newark, to B. Katchen, that city.

150 tons, signal towers, Board of Transportation, Bronx, New York, through Gardner Construction Co., to Schacht Steel Construction Inc., that city.

120 tons, building, Hertz Drive-Ur-Self Stations

Inc., Chicago, to Wendnagel & Co., Chicago; Ragnar Benson Inc., Chicago, contractor.

100 tons, towers for General Electric Co., to Isaacson Iron Works, Seattle.

STRUCTURAL STEEL PENDING

8500 tons, East Boston, Mass., express highway; first letting for 13,500 tons; bids about June 15.

4500 tons, municipal terminal building, St. George, Staten Island; bids asked.

2500 tons, neurological building, general hospital, Philadelphia; bids May 26.

2200 tons, addition, Beekman Hospital, New York; Vermilya-Brown, engineer, receiving bids.

1500 tons, Vine St. bridge, Philadelphia; Conduit & Foundation Co., that city, low on general contract.

1200 tons, Du Pont fiber plant, South Carolina; bids closed.

1000 tons, gas plant, Long Island City; bids asked through United Engineers & Constructors Inc., Philadelphia, May 17.

900 tons, Pennsylvania state bridge, Delaware county; F. A. Canuso, Philadelphia, awarded general contract.

800 tons, Public School No. 111, Long Island City, Psati & Fuhrman Inc., New York, low on general contract.

730 tons, plant addition, Asten Hill Mfg. Co., Philadelphia.

450 tons, North County Hospital, Glen Cove, Long Island; bids closed.

450 tons, state bridge, Clifton, N. J.; bids May 20.

400 tons, Pennsylvania railroad bridge, Plainsboro, N. Y.; bids May 6.

400 tons, Alaska Railroad structures, Fairbanks, Alaska; bids in to general contractors; awards soon; delivery 1949.

400 tons, Pennsylvania railroad; bids closed.

328 tons, state bridge, Middlesex county, New Jersey, pending.

300 tons, school, Linden, N. J.; Deleson Steel Co., Englewood, N. J., low bidder.

300 tons, state hospital, Middletown, Conn.

225 tons, Hillside Hospital, Queens, New York; George A. Fuller & Co., engineers.

215 tons, hangars, southwest airport, Philadelphia; Charles Rohleder, that city, awarded general contract.

200 tons, including 50 tons reinforcing, Washington state bridge, Cowlitz county; general contract to Hawkins & Armstrong, Seattle, low $254,279.

200 tons, state hospital, Danville, Pa.; bids May 4.

200 tons, Memorial Hospital, Cape May, N. Y.; bids May 17.

195 tons, state bridge, Crawford county, Pennsylvania; bids May 21.

190 tons, recitation hall and laboratory, Mercerburg, Pa., academy; bids closed.

150 tons, including 40 tons reinforcing, Washington state truss span, Cowlitz county; bids to Olympia, May 21.

140 tons, plant addition, General Electric Co., Philadelphia; bids asked through Turner Construction Co.

100 tons, state bridge work, York county, Pennsylvania; bids closed May 7.

100 tons, state bridge, Braintree, Mass.; bids in.

100 tons, school, Lexington, Mo.

100 tons, Presbyterian church, Chestnut Hill, Pa.; bids May 4.

REINFORCING BARS . . .

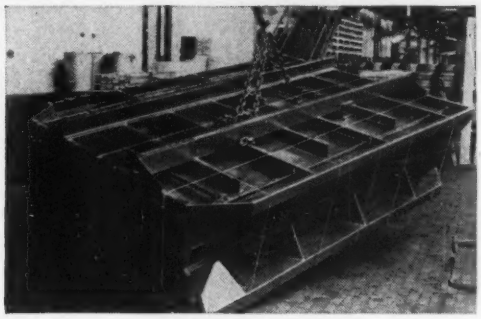
REINFORCING BARS PLACED

1275 tons, building, Research Institute, University of Chicago, Chicago, to Ceco Steel Products Corp., Cicero, Ill.; J. W. Snyder Co., Chicago, contractor.

350 tons, Goldblatt Memorial Hospital, University of Chicago, Chicago, to Ceco Steel Products Corp., Cicero, Ill.; J. W. Snyder Co., Chicago, contractor.

340 tons, Bald Hill dam, N. Dak., for U. S.

Nested dump truck bodies Gerrard Steel Strapped for island of Madeira. Savings by nesting and elimination of wood crates — nearly $25.00.



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FOR THE UTMOST IN RUST PREVENTION

"IT'S BEAUTIFUL, YES— BUT WILL IT RUST?"

Fabricators are learning that Hot-Dip Galvanizing gives added value, better appearance, and greater service to their metal products.

The Hot-Dip Method of bonding protective zinc to metal, as consistently followed by the members of the American Hot Dip Galvanizers Association, *positively* seals in metal and seals out rust and corrosion.

Each member of this Association, pledged to follow the highest standards in the Hot-Dip Galvanizing industry, has at his disposal the accumulated experience of the entire membership, the newest in equipment, and assures you the highest quality in workmanship and materials.

Write the Secretary, American Hot Dip Galvanizers Association, Inc., First National Bank Building, Pittsburgh, Penna., for membership roster.

hot-dip GALVANIZING

Engineer, to Sheffield Steel Corp., Kansas City, Mo.; Al Johnson Construction Co., Minneapolis, contractor.

250 tons, manufacturing building, American Foundry Co., Indianapolis, to Bethlehem Steel Co.

250 tons, Port of Tacoma cold storage addition, to Northwest Steel Rolling Mills Inc., Seattle.

120 tons, building, American Medical Association, Chicago, to Joseph T. Ryerson & Son Inc., Chicago; W. E. O'Neil Construction Co., Chicago, contractor.

110 tons, athletic stadium, Fort Lewis, Wash., to Bethlehem-Pacific Coast Steel Corp., Seattle.

100 tons, addition to Edison school, Gary, Ind., to Carnegie-Illinois Steel Corp.; Joseph J. Duffy Co., Chicago, contractor.

REINFORCING BARS PENDING

13,200 tons, Soap Lake siphon, Columbia Basin project, Wash. sch. 1, also 3000 tons, plate steel liner; sch. two, 5900 tons, reinforcing bars, and 12,700 tons, plate steel pipe; bids about June 1, chief engineer, Bureau of Reclamation, Denver.

3000 tons, houses, Woodside, Long Island, for New York City Municipal Housing Authority; bids to be opened shortly.

1050 tons, canal and headworks, Columbia Basin project, near Stratford, Wash.; bids late May to chief engineer, Bureau of Reclamation, Denver.

693½ tons, ⅝ to ⅞ inch rounds, for McNary dam; Tacoma Steel & Equipment Co., Tacoma, low to U. S. Engineer, Portland, $71,139.

500 tons, paper storage building, R. R. Donnelley & Sons Co., Chicago.

335 tons, earth dam, Heart river, Dickinson, N. Dak., Missouri Basin project; bids to chief engineer, Bureau of Reclamation, Denver.

328 tons, state bridge, Union county, New Jersey, bids June 1.

284 tons, apartment building, Illinois Institute of Technology, Chicago; bids May 12.

250 tons, manufacturing building, Goodman Mfg. Co., Chicago; bids May 12.

200 tons, additions to two school buildings, Gary, Ind.; bids June 1.

119 tons, new telephone exchange, Middle States Telephone Co. of Illinois; bids April 27.

103 tons, laboratory building, Glidden Co., Chicago; bids May 1.

100 tons, library building, University of Iowa, Iowa City, Iowa; bids May 20.

Unstated, three concrete state bridges, Klamath county, Oregon; bids to State Highway, Portland, May 25.

Unstated, three highway passes, Powell, Deer Lodge and Phillips counties, Montana; bids to State Highway, Helena, June 15-16.

PLATES . . .

PLATES PLACED

1000 tons, oil tanks, Pennsylvania railroad, to Bethlehem Steel Co.

375 tons, fabricated pipe, Consolidated Edison Co., New York, to Bethlehem Steel Co.

RAILS, CARS . . .

LOCOMOTIVES PLACED

Reading Co., fifteen 1000-horsepower diesel-electric switch engines, to Baldwin Locomotive Works, Eddystone, Pa.

RAILROAD CARS PLACED

Norfolk & Western, 100 seventy-ton covered hopper cars, to Greenville Steel Car Co., Greenville, Pa.

Wabash, 6 sleeping cars, to American Car & Foundry Co., New York; to be constructed at the St. Charles, Mo., plant.

RAILS PLACED

37,500 gross tons for Alaska Railroad, to Columbia Steel Co., San Francisco.

CONSTRUCTION AND ENTERPRISE

ARKANSAS

ROSE CITY, ARK.—Arkansas Power & Light Co. plans an extension to its Cecil Lynch steam generating plant at a cost of $6,800,000.

CALIFORNIA

ALAMEDA, CALIF.—Boyle Mfg. Division, 1849 Oak St., U. S. Steel Products Co., will construct a $123,000 lithographing unit adjacent to its present plant.

BERKELEY, CALIF.—U. S. Atomic Energy Commission will finance construction of the $9 million atom smashing cyclotron at the Radiation Laboratory of the University of California.

BUTTE COUNTY, CALIF.—Pacific Gas & Electric Co., 245 Market St., San Francisco, has awarded a $1 million contract to Morrison-Knudsen Co., Crocker First National Bank Bldg., San Francisco, for construction of a power house and related structures for Crestal Powerplant on south bank of Feather River in Butte County.

EMERYVILLE, CALIF.—General Cable Corp., 6221 Hollis St., will build a $60,000 warehouse.

OAKLAND, CAL. — Central Machine Works, 809 50th Ave., plans a $500,000 project to include a machine shop, plant addition, office building, engineering laboratory and fabricating plant.

OAKLAND, CALIF.—Dallman Supply Co., San Francisco, wholesaler of plumbing supplies, will build a $150,000 branch plant at E. 12th St. and 22nd Ave.

DELAWARE

HENRY CLAY, DEL. — E. I. duPont de Nemours & Co. Inc., Tenth and Orange Sts., Wilmington, has awarded a $100,000 contract to J. A. Bader & Co. Inc., 923 Market St., Wilmington, for construction of an ammonia semi-works building.

WILMINGTON, DEL.—B. F. Shaw Co., Second and Lombard Sts., has awarded an $80,000 contract to Rupert Construction Co., 3400 Lancaster Ave., for erection of an annealing furnace and foundations, a 5-ton crane and runway.

FLORIDA

JACKSONVILLE, FLA.—Fruit Growers Express Corp., Lynch Bldg., will build a 1-story car repair facility on W. Fifth St. Cost will be $82,277.

GEORGIA

ATLANTA—F. H. Ross Co., Charlotte, N. C., has awarded a $172,000 contract to Herrman Construction Co., 554 Luckie St. NW, for erection of a $172,000 warehouse and office on Memorial Dr.

ATLANTA—Georgia Power Co. plans to build an electric power plant costing $10,886,000. Facility will have a 100,000 kw capacity.

CORNELIA, GA.—Chicopee Mfg. Corp. of Georgia, will build an $83,000 manufacturing plant addition.

NEWNAN, GA.—Richardson Co., c/o A. W. Krieg, architect, Box 82, Riverside, Ill., will build a $200,000 battery manufacturing plant.

ILLINOIS

CHICAGO—Peoples Gas Light & Coke Co., 122 S. Michigan Ave., has awarded a $3,500,000 contract to Koppers Co. Inc., Koppers Bldg., Pittsburgh, for construction of a battery of 51 byproduct, underjet-type coke ovens.

ROCKFORD, ILL.—Patten Tractor & Equipment Co., 3411 Minnesota Dr., will build a $150,000 plant for sales and service of industrial and farm tractors on U. S. Route 51.

INDIANA

CRAWFORDSVILLE, IND.—Mid West Steel

YOUR QUESTIONS

HOW CAN WE INCREASE PRODUCTION?

HOW CAN WE LOWER COSTS?

HOW CAN WE ESTABLISH LABOR HARMONY?

HOW CAN WE TAKE KINKS OUT OF PRODUCTION?

HOW CAN WE IMPROVE QUALITY?

HOW CAN WE MEET OUR SPECIAL PROBLEM?

ANSWERED...

BY THE LARGEST STAFF OF ENGINEERS IN THE COUNTRY IN THIS NEW BROCHURE

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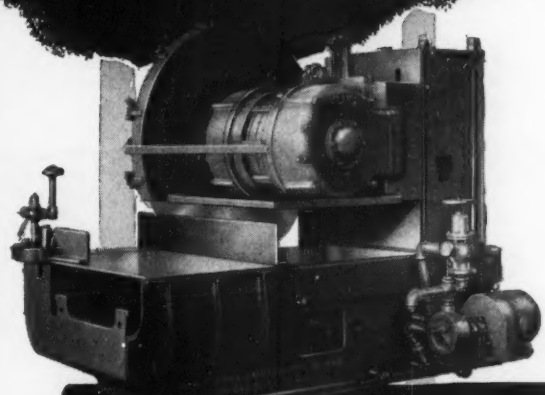
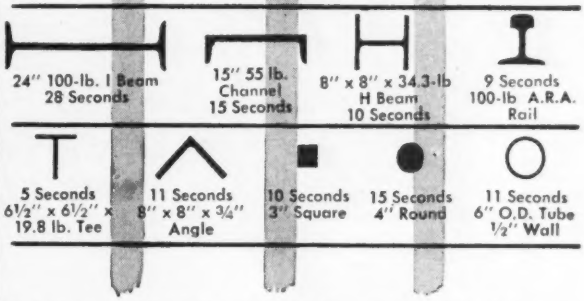


with KLING HIGH SPEED FRICTION SAWS



Friction sawing is one of few mechanical processes which employ the heat of friction in a useful manner. It concentrates heat on the material to be severed at a rate which is faster than it can absorb heat. The immediate temperature rise of the contact surface is so great that its strength is reduced considerably lower than that of the colder blade rim. This heated surface is readily removed by the blade and permits complete severing of the material rapidly with no loss of metal from the blade.

Because of its versatile ability to cut many varied structural shapes, as well as solid or hollow bars in any sequence, without change of blade or set-up, one machine can handle a volume of cutting that would otherwise require several separate shears or slow speed saws.

Consult Kling engineers regarding your metal cutting problems. State size of material to be cut. Bulletin No. 9200 giving full particulars and suggestions as to the type and size of saw will be mailed promptly. No obligation.

KLING BROS. *Engineering Works*

Punches; Bar, Angle and Rotary Shears; Combination Shear, Punch and Copers; Plate and Angle Bending Rolls; Heavy Duty Grinders

1328S NORTH KOSTNER AVE, CHICAGO 51, ILLINOIS, U. S. A.

Co. will rebuild a plant at a cost of $150,000.

EVANSVILLE, IND. — Bernadin Bottle Cap Co., 329 NW Fourth St., has awarded a $158,000 contract to Tri-State Construction Co., 1525 Shanklin Ave., for erection of a factory and office at 1010 Mt. Auburn Rd.

FT. WAYNE, IND.—International Harvester Co., Hugo A. Weissbrodt, works manager, 220 E. Jefferson St., has awarded a contract to Indiana Engineering & Construction Co., 303 Ft. Wayne Bank Bldg., for erection of a 2-story, heat treat building addition.

INDIANAPOLIS—Western Elcteric Co., 195 Broadway, New York, has purchased a 130-acre industrial site for construction of a manufacturing plant.

LAWRENCEBURG, IND.—Indiana & Michigan Electric Co., J. G. Mooney, executive vice president, 220 W. Colfax Ave., South Bend, plans to build a $20 million steam generating plant along the Ohio river near here.

KENTUCKY

HARLAN, KY.—Twin Mountain Coal Co., c/o Jack Langley, will build a tipple, head house, coal chute and other facilities at a cost of $75,000.

HAZARD, KY.—North Star Coal Co., c/o I. H. Buchanan Jr., will spend $100,000 for construction of a tipple and other facilities.

JENKINS, KY.—Consolidation Coal Co. has leased mines from Elkhorn Collieries Co., Farraday, and will launch a $300,000 improvement program, to include a new tipple and construction of a short extension of the Louisville & Nashville Railroad to reach undeveloped coal properties.

LOUISVILLE, KY.—Schmutz Mfg. Co., c/o contractor, has awarded a $75,000 contract to F. W. Owens Co., 119 N. Fifth St., for construction of a factory addition.

LOUISIANA

OPELOUSAS, LA.—Humble Oil & Refinery Co. has purchased land south of here and has plans in progress for construction of a $5 million oil refinery and stripping plant.

MISSISSIPPI

HATTIESBURG, MISS. — Mississippi Power Co. has awarded a $2 million contract to Hyde Construction Co. for the third unit at Plant Eaton on east bank of Leaf River between Highway 11 and River Rd.

MISSOURI

NORTH KANSAS CITY, MO.—North Kansas City Development Co., Abe N. Adelson, president, Commercial Bldg., has awarded a $3 million contract to Del Webb Construction Co., 25th and Ozark Sts., for erection of an industrial project for manufacturing and warehouse use. Program calls for six buildings between 14th and 18th Sts.

NEW JERSEY

ELIZABETHPORT, N. J.—Central Railroad of New Jersey, A. M. Zabriskie, chief engineer, Jersey City Terminal, Jersey City, will spend $387,000 to convert two buildings, one into a diesel electric locomotive repair shop and the other into an engine traction motor repair shop.

WOODRIDGE, N. J.—Shell Oil Co., 50 W. 50th St., New York, will build an oil refinery and laboratory on 400 acres here and on 200 acres in Carteret.

NEW YORK

BUFFALO—Buffalo Structural Steel Corp., 166 Dart St., plans a $500,000 plant expansion.

UPTON, N. Y.—U. S. Atomic Energy Commission will finance construction of the $3 million synchrotron or high energy electronuclear machine to be built at Brookhaven National Laboratory.

NORTH CAROLINA

CHARLOTTE, N. C.—Crawford Sprinkler Co. has awarded a contract to Norman A. Smyth Co. for construction of a plant to cost $200,000, including the building and equipment.

RAEFORD, N. C.—American Wringer Co., Woonsocket, R. I., will build a $150,000 plant here.

OHIO

CAMPBELL, O.—Cold Metal Products Co., 2131 Wilson Ave., W. B. Lockwood, president, will construct a 1-story, 300 x 80 ft building here. Facility will include crane runways.

CLEVELAND—Nottingham Steel Co., W. 45th St. and Division Ave., plans to build a $70,000 plant addition. Harry W. Aultman, Uniontown, Pa., is the architect.

CLEVELAND—Harshaw Chemical Co., 1945 E. 97th St., E. J. Harshaw, president, is building a $73,000 factory addition. Facility will be a 3-story structure.

CLEVELAND—Murray Mfg. Co., 1115 E. 152nd St., toy manufacturer, will construct a 1-story top floor addition to its plant.

NILES, O.—Niles Fire Brick Co., 165 E. Park Ave., now constructing a 1-story factory addition to be used for a tunnel kiln and dryer buildings, announces that two new processing buildings will be erected within a few months.

YOUNGSTOWN—Magnethermic Corp. has been formed by John A. Logan, 84 Melrose Ave., and others to design, manufacture and deal in electrical and mechanical equipment.

PRICES OF LEADING FERROALLOYS PRODUCTS

(Concluded from Page 133)

Ferromanganese Briquets: (Weighing approx. 3 lb and containing exactly 2 lb of Mn). Eastern Zone, contract, carload, bulk, 8.7c per lb of briquet, c.l. packaged 9.5c, ton lot 10.3c, less ton 11.2c; Central, add 0.25c for c.l. and 0.6c for l.c.l.; Western, add 0.8c for c.l. and 2.5c for l.c.l. Freight allowed. Add 0.25c for notching. Spot, add 0.25c.

Silicomanganese Briquets: (Weighing approx. 3½ lb and containing exactly 2 lb of Mn and approx. ½ lb of Si). Eastern Zone, contract, c.l. bulk 8.75c per lb of briquet, c.l. packed 9.55c, ton lot 10.35c, less ton 11.25c; Central, add 0.25c for c.l. and 0.6c for l.c.l.; Western, add 0.8c for c.l. and 2.5c for l.c.l. Freight allowed. Add 0.25c for notching. Spot, add 0.25c

Silicon Briquets: (Large size—weighing approx. 5 lb and containing exactly 2 lb of Si). Eastern Zone, contract, carload, bulk 5.1c per lb of briquet, c.l. packed 5.25c, ton lot 6.7c, less ton 7.6c. **(Small size**—weighing approx. 2½ lb and containing exactly 1 lb of Si). Eastern Zone, carload, bulk 5.25c c.l. packed 6.05c, ton lots 6.85c, less ton 7.75c; Central, add 0.25c for c.l. and 0.6c for l.c.l.; Western, add 0.45c for c.l. and 0.9c for l.c.l. Freight allowed. Add 0.25c for notching, small size only. Spot, add 0.25c.

CALCIUM ALLOYS

Calcium-Manganese-Silicon: (Ca 16-20%, Mn 14-18%, and Si 53-59%). Eastern Zone, contract, carload, lump, bulk 17.50c per lb of alloy, carload packed 19.0c, ton lot 19.8c, less ton 20.8c; Central, add 0.5c for c.l. and 0.85c for l.c.l.: Western, add 2.55c for c.l. and 2.6c for l.c.l. Freight allowed. Spot, add 0.25c.

Calcium-Silicon: (Ca 30-33%, Si 60-65%, Fe 1.50-3%). Eastern Zone, contract, carload, lump, bulk 16.25c per lb of alloy, carload packed 16.45c, ton lot 19.35c, less ton 20.85c; Central, add 0.5c for c.l. and 0.75c for l.c.l.; Western, add 2.55c for c.l. and 2.90c for l.c.l. Freight allowed. Spot, add 0.25c.

VANADIUM ALLOYS

Ferrovanadium: Open Hearth Grade (Va 50-55%, Si 8% max., C 3% max.). Eastern Zone, contract, any quantity, $2.90 per lb of contained Va; Central, add 2c for c.l. and 3c for l.c.l.; Western, add 6c for c.l. and 9c for l.c.l. Freight allowed. Spot, add 10c. **Special Grade** (Va 50-55%, Si 4% max., C 1% max.). $3. **High Speed Grade** (Va 50-55%, Si 1.50% max., C .20% max.). $3.10.

Vanadium Oxide: All Zones, contract, less carload lots, $1.20 per lb of contained V_2O_5. Spot, add 5c.

Grainal: Vanadium Grainal No. 1, 93c; No. 6, 63c; No. 79, 45c; all fob Bridgeville, Pa., usual freight allowance.

TITANIUM ALLOYS

Ferrotitanium: (Ti 20-25%, Al 3% max., Si 4% max., C 0.10% max.). Eastern Zone, contract, ton lot, 2" x D, $1.35 per lb of contained Ti, less ton $1.40. (Ti 40-45%, Al 7% max., Si 4% max., C 0.10% max.). Ton lot $1.23, less ton $1.25; Central, add 4c for 20-25% Ti grade, and 2.1c for 40-45% grade; Western, add 13.5c for 20-25% Ti grade, and 7.2c for 40-45% grade. Freight allowed. Spot, add 5c.

Ferrotitanium, High-Carbon: (15-20%). Contract basis, per net ton, fob Niagara Falls, N. Y., freight allowed to destination east of Mississippi river and north of Baltimore and St. Louis, 6.8% C, $142.50; 3-5% C, $157.50.

TUNGSTEN ALLOYS

Ferrotungsten: (W 70-80%). Eastern Zone, contract, 10,000 lb W or more, $2.25 per lb of contained W; 200 lb W to 10,000 lb W, $2.35; less than 2000 lb W, $2.47. Spot, add 2c.

Tungsten Powder: (W 98.8% min.). Eastern Zone, contract or spot, 1000 lb or more, $2.90 per lb of contained W; less than 1000 lb W, $3.

ZIRCONIUM ALLOYS

12-15% Zirconium Alloys: (Zr 12-15%, Si 39-43%, Fe 40-45%, C 0.20% max.). Eastern Zone, contract, c.l., lump, bulk 6c per lb of alloy, c.l. packed 6.75c, ton lot 7.5c, less ton 8.35c; Central, add 0.25c for c.l. and 1.1c for l.c.l.; Western, add 0.6c for c.l. and 3.95c for l.c.l. Freight allowed. Spot, add 0.25c.

35-40% Zirconium Alloy: (Zr 35-40%, Si 47-52%, Fe 8-12%, C 0.50% max.). Eastern Zone, contract, carload, lump, packed 18.4c per lb of alloy, ton lot 19.15c, less ton 20.40c; Central, add 0.6c for c.l. and 1.05c for l.c.l.; Western add 3.05c for c.l. and 4c for l.c.l. Freight allowed. Spot, add 0.25c.

BORON ALLOYS

Ferroboron: (B 17.50% min., Si 1.50% max., Al 0.50% max., C 0.50% max.). Eastern Zone contract, 100 lb or more, 1" x D, $1.20 per lb of alloy, freight allowed. Less than 100 lb $1.30; Central, add 0.75c; Western add 2.9c, freight allowed. Spot, add 5c.

Borosil: (3 to 4% B, 40 to 45% Si), $6.25 per lb contained B, fob Philo, O., freight not exceeding St. Louis rate allowed.

Bortam (B 1.5-1.9%). Ton lots, 45c per lb; smaller lots, 50c per lb.

Carbortam: (B 0.90 to 1.15%). Net ton to carload, 8c per lb, fob Suspension Bridge, N. Y., freight allowed same as high-carbon ferrotitanium.

OTHER FERROALLOYS

Ferrocolumbium: Cb 50-60%, Mn 5% max., Si 8% max., C 0.5% max.). Eastern Zone, contract, ton lot, 2" x D, $2.50 per lb of contained Cb, less ton $2.55; Central, add 1.65c; Western, add 6.45c. Freight allowed. Spot, add 10c.

CMSZ Mixes: No. 4—Cr 45-49%, Mn 4-6%, Si 18-21%, Zr 1.25-1.75%, C 3-4.5%; No. 5—Cr 50-56%, Mn 4-6%, Si 13.50-16.0%, Zr 0.75-1.25%, C 3.50-5%). Eastern Zone, carload, 12 M x D, carload packed 17.25c per lb of material, ton lot 18.00c, less ton 19.25c; Central, add 0.3c for c.l. and 1.1c for l.c.l.; Western, add 0.3c for c.l., and 3.05c for l.c.l. Freight allowed.

Silcaz Alloy: (Si 35-40%, Ca 9-11%; Al 6-8%, Zr 3-5%, Ti 9-11%, Boron 0.55-0.75%), Eastern Zone, carload, packed, 1" x D, 39c per lb of alloy, ton lot 41c, less ton 43c; Central, add 0.3c for c.l. and 1.1c for l.c.l.; Western, add 0.3c for c.l. and 3.05c for l.c.l. Freight allowed.

SMZ Alloy: (Si 60-65%, Mn 5-7%, Zr 5-7%, Fe 20% approx.). Eastern Zone, contract, carload, packed, ½" x 12 M, 15.0c per lb of alloy, ton lot 15.75c, less ton 17.0c; Central, add 0.3c for c.l. and 1.1c for l.c.l.; Western, add 0.3c for c.l. and 3.05c for l.c.l. Freight allowed. Spot, add 0.25c.

Simanal: (Approx. 20% each Si, Mn, Al). Packed, lump, carload 10c, ton lots 10.25c, smaller lots 10.75c per lb alloy; freight not exceeding St. Louis rate allowed.

Ferrophosphorus: (17-19% based on 18% P content with unitage of $3 for each 1% of P above or below the base) Gross tons per carload fob sellers' works, with freight equalized with Rockdale, Tenn.; contract price $58.50, spot $62.25.

Ferromolybdenum: (55-75%). Per lb, contained Mo, fob Langeloth and Washington, Pa., furnace, any quantity 95.00c.